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MONTHLY REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR

NOVEMBER AND DECEMBER,

1870.

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MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Statistical Division, December 16, 1870.

SIR: I herewith report for publication statistics of comparative production and condition of certain farm crops, from returns of November and December, with extracts from letters of regular and special correspondents, and articles upon the following topics: Southern Agriculture, Experiments with Department Seeds, Premium Corn Crop in Pennsylvania, American Dairyman's Association, Valley of the Rio Grande, Rainy Season in California, Stock Sales, Immigration, Market Prices of Farm Products, Sugar Beet in Europe, Wide Drilling and Tilling of Wheat, Hop Growing in England, Meteorology, &c.

J. R. DODGE,
Statistician.

Hon. HORACE CAPRON,
Commissioner.

CONDITION OF THE CROPS.

Corn.—The estimates of the corn product for the past years have rarely indicated a very near approach to a full crop. The crop of 1859 (as reported by the census) was 838,000,000 of bushels. The increase of population (about 25 per cent.) would require in 1869 an increase of more than 200,000,000 to keep up the same ratio of production. The estimate of 1869 was only 884,000,000, showing an increase in ten years of only 46,000,000, or 5 per cent., to counterbalance an advance in population of 25 per cent. That of 1868 was little larger, and less by a hundred millions than a full crop of maize. The present is undoubtedly, in proportion to population, and probably in proportion to acreage, the largest crop since that recorded by the census. From a preliminary calculation, upon local returns from 749 counties, the total product of this year is made to exceed 1,100,000,000. This would give about 28 bushels per acre this year, upon the assumed acreage, (39,000,000 acres) against 23½ bushels upon a little more than 37,000,000 acres last year.

The greatest relative increase appears in Illinois, where the crop of 1869 was very short, amounting to 65 per cent. in aggregate bushels; Indiana is placed next, at 55 per cent.; Michigan, 35; Wisconsin, 33; Ohio, 30; Minnesota, 23; Kentucky, 23; Iowa, 19; New York, 18. Some of the southern States have made a large relative advance; Tennessee, 32; South Carolina, 27 per cent.; Georgia, 22; Louisiana, 20; Alabama, 17; Mississippi, Texas, and other cotton States have made a small increase. The States producing less than last year are, Connecticut, 15 per cent.; Rhode Island, 14; Massachusetts, 10; California, 10; New Hampshire, 5; Kansas, 2. Of 749 counties reported, 535 report a total product above an average; and 117 represent the local crop at less than

an average. The following table will show the number and relative character of those returns:

States.	No. of counties reporting.	Above average.	Average.	Below average.	States.	No. of counties reporting.	Above average.	Average.	Below average.
Maine	9	7	1	1	Louisiana	9	7	2	.....
New Hampshire	6	2	.....	4	Texas	29	13	8	8
Vermont	8	5	2	1	Arkansas	15	11	3	1
Massachusetts	7	2	1	4	Tennessee	29	25	1	3
Rhode Island	3	.....	2	1	West Virginia	13	12	.....	1
Connecticut	4	1	.....	3	Kentucky	23	21	.....	2
New York	33	28	2	3	Missouri	49	35	7	7
New Jersey	16	12	2	2	Illinois	49	42	3	4
Pennsylvania	40	26	7	7	Indiana	37	35	1	1
Delaware	1	1	.....	.....	Ohio	40	34	5	1
Maryland	11	4	2	5	Michigan	33	30	3	.....
Virginia	26	14	2	10	Wisconsin	26	21	4	1
North Carolina	40	31	4	5	Minnesota	15	11	1	3
South Carolina	10	8	.....	2	Iowa	36	24	7	5
Georgia	42	35	5	2	Kansas	20	8	1	11
Florida	4	1	2	1	Nebraska	10	5	3	2
Alabama	14	8	5	1	California	13	2	6	5
Mississippi	23	11	4	8	Oregon	6	3	1	2

Of 49 counties of Illinois, 19 report an increase over last year of 50 to 100 per cent. or more, viz: Alexander, Adams, Gallatin, Grundy, Hancock, Jersey, Kendall, Lee, Logan, Marion, McHenry, Morgan, Peoria, Pike, Pope, Pulaski, Schuyler, Washington, Williamson. In many of the counties last year's crop was a comparatively small one.

The drought was of longer continuance in New England than elsewhere, and was more serious in its effects, scorching the plant upon the sandy soils of Southern New Hampshire, Eastern Massachusetts, Rhode Island, and Connecticut. In Maine, Northern New Hampshire, and Vermont, the crop matured remarkably well, the unusual heat being just sufficient to develope the plant and perfect the ear. Some soils in New York proved too light for a summer of high temperature, but the strong lands and the peaty soils of the more northern counties reaped great advantage from continued heat.

From New York down the coast to South Carolina, there was much injury from dry weather, yet the average was large, and the soils of good quality and fair culture gave fine yields, making more than the usual return in the aggregate. The southern counties of Maryland were among the most seriously parched in this region. A few counties in the Mississippi Valley make record of a short crop from drought, and in some cases report inferior quality, the grain "light, chaffy, and loose on the cob," as in Vernon County, Missouri. Short ears of fair quality resulted from the drought in other soils, and an earlier maturity is frequently noted. In Warren County, New Jersey, corn was "husked and cribbed" in September.

Wet weather in the spring wrought quite as much injury as the later drought in the eastern counties of Virginia and North Carolina, especially in the counties of Caldwell, Currituck, and Rockingham, in North Carolina. Wet weather was injurious in some counties of Tennessee and Missouri.

Some complaint is made of the rotting of the corn after coming to maturity in North Carolina, Alabama, Texas, Arkansas, and Kentucky.

In some sections, where rain was abundant in spring and drainage imperfect, the late planted corn, if deeply plowed and well cultivated,

matured best. This was the case in the West, and even on the southern Atlantic coast; yet the dry uplands of the South and Southwest matured better the earlier planting.

Insects appeared as hindrances to full success in isolated fields. In Currituck County, North Carolina, the "shatter worm," (in local parlance,) probably the larva of one of the species of *Sphenophorus*, working in the stalk, caused some damage. Worms in the ear, presumed to be *Heliothis armigera*, have been troublesome in Cowley County, Kansas. The corn weevil, *Sitophilus oryzæ*, is reported in Caswell, North Carolina, and Austin, Texas. The chinch bug, *Micropus leucopterus*, has been injurious in Macon County, Illinois, and Nemaha, Kansas.

The local yield is relatively very large in many of the returns. The crop is declared "the best since 1862" in Saratoga County, New York; "the best in thirty years" in Indiana County, Pennsylvania; "150 per cent. better than last year" in Buckingham County, Virginia; "the best in ten years" in Granville, North Carolina; "the largest since the war" in Spartansburg, South Carolina; "fifty per cent. above an average" in Randolph, Alabama; a similar increase in other counties of Alabama, and in parishes of Louisiana; "the heaviest crop for years" in Marion, Texas; "the largest in fifteen years" in Butler, Kentucky; "the best ever raised" in Warren, Kentucky; "never better in quality" in Williams, Ohio; "some fields 150 bushels of ears per acre" in Montcalm, Michigan.

This analysis of returns, exhibit of their averages, and presentation of their worst as well as their best features, will give a fair interpretation of the aggregate judgment of reliable farmers, each reporting only his own county, without undertaking to guess for the whole State or section.

Cotton.—A combination of the elements of acreage and condition in the October report, without allowing for possible drawbacks from weather, pointed to a "crop exceeding three and a half million of bales." None of the contingencies so liable to reduce production have occurred since that date to vitiate a favorable comparison with the remarkably favorable season of 1869; and as the early summer was more propitious than that of last year, the November returns indicate eighteen per cent. advance in quantity upon an acreage increased by twelve per cent. The total aggregate result, as figured from returns to December 1st, makes an estimate of 3,800,000 commercial bales, 1,767,000,000 pounds, or eighty-two per cent. of the crop of 1859, which was 2,154,820,800 pounds.

The following statement presents the estimate in detail, including the percentage of increase over the previous crop, and the yield per acre, with the number of acres cultivated in each State.

States.	No. of acres.	No. of bales.	Product compared with 1869. (per cent.)	Yield per acre.
North Carolina	451,714	170,000	118	175
South Carolina	601,764	220,000	124	170
Georgia	1,330,491	495,000	122	173
Florida	140,909	50,000	126	165
Alabama	1,437,272	510,000	112	165
Mississippi	1,644,512	725,000	110	205
Louisiana	920,700	495,000	115	250
Texas	900,937	465,000	132	240
Arkansas	711,734	375,000	124	245
Tennessee	526,184	215,000	114	190
Other States	218,823	80,000	.....	170

The top crop has matured well, producing less short and discolored fiber than usual. The report of Taylor County, Georgia, claims a more favorable autumn for maturing and gathering than for twenty years, and a crop larger by a third than was promised late in September. Counties in Alabama, rated short on the 1st of October, will secure a full average. Many of the returns, made early in November, claimed entire exemption from frosts to date. The influence of mild and pleasant weather in Tennessee upon the maturing of later bolls is especially marked, and perhaps in a still higher degree in Missouri.

Large yields are occasionally reported, as in Crawford County, Texas, where 3,000 pounds of seed cotton per acre have been grown upon limited areas. In Uvalde County, in the same State, 800 pounds are assumed to be the average for the first year of cotton culture there. In some portions of North Carolina, as in Stokes County, good farmers are realizing a bale per acre, and in many counties a better yield is secured than in 1859. Several counties in other States report the largest crop ever grown.

On the contrary, there are counties in which a reduction appears, as in Bertie, North Carolina, where the crop "is scarcely larger than last year with twice the acreage."

It is mentioned, as a noticeable fact, that the advantages of favorable weather were in many places rendered nugatory by poor cultivation; and abundant evidence appears that watchfulness and industry, with science, will go far to obviate any disadvantages, natural or otherwise, under which the planter may labor. An illustration is afforded from Wilkinson County, Mississippi, a comparatively poor portion of the State, where our own correspondent has produced fully 500 pounds of lint per acre, on old hill lands, by means of deep, thorough culture, stable manure, and commercial fertilizers.

A general exemption from losses by insects is noted, with occasional exceptions, mostly in Louisiana and Texas. The counties of Red River, Matagorda, and Henderson, in Texas, and Rutherford County, in Tennessee, have been infested with the boll-worm.

Floods have reduced the yield in Kendall, Milam, Victoria, Fayette, Colorado, Bexar, and other counties in Texas.

Rust has been injurious in the counties of Anson and Rowan, North Carolina, and to a slight extent in Mississippi and Louisiana.

A peculiarity of the season has been the appearance of cotton blooms late in the fall, indicating an autumn unusually favorable to the vigor and continued fruitfulness of the plant. Second crops of grapes and other fruits have also been noted in the South from a similar cause.

The sea-island cotton culture has not been extended, and has been less prosperous than the upland varieties, which constitute nearly the whole bulk of our production. The sea islands are now mainly occupied by freedmen, who are not progressive, and scarcely industrious enough in the work. The cotton of Glynn County, Georgia, is grown almost exclusively by freedmen, who rent the lands, and, never manuring, the soil is exhausted and the crop a failure. A few islands of the Carolina and Georgia coast and a part of the cotton acreage of Florida, constitute our available resources in black seed cotton. Last year's crop was but 26,656 bales.

The region of Galveston Bay, in Texas, produces sea-island cotton of superior quality. A report is received of a sack of 118 pounds of lint, which was sold last season in Galveston for $123. The yield is represented to be 200 to 300 pounds per acre.

It will of course be understood that these aggregates are estimates,

and not an actual enumeration, which would be impossible in advance, though very easy a year later in the light of recorded facts of the cotton movement. Every year have they been assailed by two parties—the producer, who deems the figures too high, and the manufacturer or trader, who is sure they are too low; and usually both have had the grace to make the amende before the cotton year expired. All preliminary estimates are made from returns of October 1, at the close of the first picking, when good or bad weather for the three succeeding months may make a difference of half a million bales in the result. To insure infallibility in an estimate at that date would require omniscience in the statistician, a qualification not yet required in civil service examinations. Yet the earliest estimates of the past four years, 1866–'69, have fallen very little short of the actual returns, and have in no instance come far from the aggregate of the receipts of the year, unless an exception be made of last year, when the peculiarly mild and stormless autumn increased the production over an average expectation fully a third of a million bales, and the estimate was advanced accordingly to three million bales. That estimate has been pronounced by the best authority an entirely proper one for the time. The following statement will show the difference between the estimate and the commercial returns, the latter including nearly enough of the old crop grown prior to 1866 to make the difference—the figures being those of the New York Shipping List, and including shipment by railroad northward as well as receipts at cotton ports, but they do not include (in the years 1866–'69) about 80,000 bales per annum used in the South:

Year.	Preliminary estimate. *Bales.*	Total receipts. *Bales.*
1866	1,835,000	2,031,988
1867	2,340,000	2,430,892
1868	2,380,000	2,260,557
1869	2,750,000	3,114,592
	9,305,000	9,838,029

It is also our aim, in a preliminary estimate, to fall a little below rather than go an ounce above the probable yield, and thus give the benefit of any doubt or contingency to the producer, while honestly aiming to bring to light the precise facts of production, however they may affect prices, planting, or manufacture. If these estimates, made upon this plan before the crop was grown, are not sufficiently accurate, they are, at least, uniformly the most complete, full, and reliable that have appeared before the crop was grown.

Sugar Cane.—The increase in cane over last year is estimated at thirty per cent. in Louisiana, a similar rate is returned for Texas, and some advance has been made in Georgia and Florida. So much cane is annually used as plant cane in extending the acreage that the product of sugar and molasses does not represent the real increase in cane growing. It is reported from West Feliciana, (Louisiana,) that the crop promised well until the middle of September, since which time want of rain has reduced the yield. In Rapides the acreage is increased by thirty per cent. In Terre Bonne fifty per cent. increase in the product was promised in November. Drought has somewhat reduced expectations in St. Mary's, as also in Leon Parish. The prospect is very favorable in Iberia Parish. Recent frosts have injured the cane to a considerable extent, and it is feared that it will sour before it can be

used. The sugar product of Louisiana in 1869 was about 87,000 hogsheads. The quantity manufactured elsewhere is small, but increasing. Cane is found very profitable in Southern Georgia for the manufacture of sirup exclusively. Its culture is rapidly extending in Texas, and seems destined to be a product of much importance there.

In the country west of Galveston Bay, where its culture has been commenced, the slightest frost had not occurred on the 11th of November, the lowest range of the thermometer being 49°.

Sorghum.—Returns indicate a larger product than that of last year. The States showing an increase are South Carolina, Georgia, Texas, Arkansas, Tennessee, and all of the Western States. Little is grown in the Atlantic States north of Virginia. It is injured by rust in Butler County, Kentucky. In Greene, Tennessee, the blades and seeds rotted badly. A complaint of deterioration by "second growth" comes from Marion County, Iowa; yet sorghum from seed planted early upon land highly manured, yielded 175 gallons of superior sirup per acre, while neighboring lots, differently treated, were not worth harvesting. Drought injured the crop in some places in the West, and prevented the harvesting of a second crop in Texas.

Tobacco.—The tobacco crop is comparatively large; the increase upon the crop of 1869 being 18 per cent. in Virginia, 22 in North Carolina, 20 in South Carolina, 23 in Georgia, 15 in Tennessee, 20 in Kentucky, 6 in in Missouri, 6 in Illinois. Kentucky, Virginia, Tennessee, North Carolina, and Missouri produce the bulk of the crop, with considerable aid from Maryland, Illinois, Indiana, and Ohio. Connecticut and Massachusetts still produce largely of the seed leaf for wrappers, and the States of the Ohio Valley are beginning to find its production profitable. The estimate of the year will aggregate at least 300,000,000 pounds.

Hay.—The hay crop is less in quantity than that of 1869 by about 15 per cent. The estimate will go above 20,000,000 of tons, which is little more than the product of 1859. The crop in New England is reduced one-sixth; one-fifth in New York; a little in the Gulf States east of the Mississippi; in Missouri, 29 per cent.; in Illinois, 31; in Indiana, 19; in Ohio, 16; in Mississippi, 2 per cent. It is worthy of remark that Kansas, popularly regarded as extremely subject to drought, is credited with an increase of 8 per cent. Minnesota has also had a good crop, and the yield of the Southwest and of the Southern Atlantic coast has been good. The quality is superior to such a degree as nearly to make good the the loss in quantity.

Potatoes.—The production of the year is little more than four-fifths of the preceding, and the aggregate estimate will not vary much from the total number of bushels in 1859, 111,000,000, which will afford to each inhabitant four-fifths of the supply of that year. The only States producing in excess of 1869 are North Carolina, Georgia, Texas, Arkansas, Tennessee, Kentucky, Iowa, Kansas, and Nebraska. In all these States there was abundant moisture in the early part of the season, and in most of them the potato matures before the summer heats set in. The decrease in New England ranged from 5 per cent. in Vermont to 38 in Connecticut. The reduction in the West follows the line of comparatively dry weather in spring and early summer, which ran northwest through Missouri and Illinois to Eastern Wisconsin, sufficient and generally abundant rains falling north and west of such line. Another cause of reduced yield, the Colorado potato bug, seriously affected Wisconsin and Minnesota. The reduction in Illinois appears to be 23 per cent., in Indiana, 45; in Ohio, 26; in Michigan, 24, in New York, 12; in Pensylvania, 14; in New Jersey, 18; in Delaware, 40; in Maryland,

45. The injury by drought was mainly on the sandy lands of the coast from Norfolk, Virginia, to Portsmouth, New Hampshire. A near approach to a failure is reported from Columbia, Pennsylvania, and Douglas, Oregon, and serious losses appear in Essex, Hudson, Mercer, and Burlington, New Jersey.

Late varieties, or those planted late, did best in some counties in northern New England, and the October growth in eastern Iowa was remarkable, especially in Muscatine, where a yield of 300 bushels per acre was not uncommon. In Iowa and Marion counties, in Iowa, a fair yield, not well matured, was obtained, and the late potatoes in Nemaha, Nebraska, were immature. In the eastern counties of Maryland the late crop was a partial failure.

Some large yields are mentioned, as in Elk County, Pennsylvania, where 500 bushels per acre were obtained from lowlands. In McDonough County, Illinois, the crop was so abundant as to sell for only 30 to 35 cents per bushel.

Complaint of rot is not general. Some reports of decay after digging come from New York, New Jersey, North Carolina, and Nebraska.

The quality is reported as somewhat better than last year in Maine, New Hampshire, Vermont, New York, Virginia, North Carolina, Georgia, Mississippi, Arkansas, Tennessee, West Virginia, Kentucky, Iowa, and Oregon.

The Colorado beetle (*Doryphora decem-lineata*) has reached Michigan and Ohio in its emigration eastward, but is still very injurious in Wisconsin and Minnesota.

Sweet potatoes.—The crop has been a large one, nearly every State showing a more than average yield. The quality was uniformly superior, except in Florida, Louisiana, and California.

Buckwheat is a somewhat smaller crop than the preceding one, the loss being in the New England and Middle States.

Full crops of *peas* and *beans* are reported, the former being larger in the south, the latter in the north.

Flax.—This crop will average rather better than last year. A slight increase has been made in Ohio, Michigan, Wisconsin and Kansas.

Castor beans.—Full returns have not been received concerning this crop, which is one of local rather than general culture, but it enjoys much favor in many localities in the South and West, and is yearly introduced into new fields.

Fruit.—The present has been a fruitful year for orchards and vineyards in the Eastern, Middle, and Western States, but less productive in the South, and in California and Oregon, as to apples and pears.

Grapes do not fall below an average in any of the States north of the southern line of Pennsylvania, and range in that section from an average to twenty-five per cent. above. The vineyards of California have been greatly extended, and a large area has come into bearing the present season.

Great yields are reported at different points. Missouri and Southern Illinois report heavy production. Two and a half tons per acre are claimed for many of the vineyards of Hancock County, Illinois. Rarely has there been a more favorable season for ripening grapes in northern latitudes, and the vintage of 1870 ought to be of superior excellence. The Concord and Virginia Seedling take the lead as wine grapes in Missouri. In Franklin County, Kansas, the Catawba and Isabella have done better than the Concord and Clinton.

Few reports of diseases or casualties have been received. In Madison County, Illinois, loss has resulted from mildew, black rot, and from frost.

The apple crop of the Atlantic States is very large; full in Michigan, Kentucky, and Tennessee; but short in most other portions of the South and West. If those of first quality only are considered, the supply is probably not larger than that of last year. Much complaint of injuries by worms is received, and a general tendency to early decay is reported. Poor fruit has been a drug in country markets, not worth transportation, and taxing severely the facilities for barreling, when made into cider. The barrel has usually cost more than the cider contained in it. The cider production of the country has had a manifold increase. Large quantities of apples have been fed to cattle, with evident advantage to forage supplies. In some places apples have been stored for winter use of cattle. Immense quantities have been allowed to rot on the ground.

Pears have been abundant in New England, and a good yield from Virginia to Georgia, but a comparatively small crop elsewhere.

Cranberries do not promise a full supply. But half a crop is reported in Massachusetts, and not a full one in New Jersey. The western reports are favorable. No report has been received from the Northern Pacific coast. The Indians of Utah are making a profitable traffic with this fruit.

Winter grain.—Accounts of fall-sown wheat and rye are generally favorable. Fields are green and promising; in some too great luxuriance appears. Many reports of increased acreage are received from different parts of the country; a few accounts of decreased acreage are received. California is still enlarging her wheat area. Destruction by the fly is serious in Beaver County, Pennsylvania; Knox, Tennessee; Parke and Clinton, Michigan. Red rust has appeared in Cass County, Indiana. The ground has been too dry for early sowing in eastern Maryland. On the contrary, in parts of Missouri seeding has been obstructed by incessant rains. The condition of wheat at this date is somewhat above an average.

Table showing the condition of the crops, &c., on the 1st day of November, 1870.

STATES.	CORN.		POTATOES, (Solanum tuberosum.)		POTATOES, (Batatus edulis, sweet.)		TOBACCO.		HAY.		BEANS.
	Product compared with last year.	Average quality compared with last year.	Product compared with last year.	Average quality compared with last year.	Product compared with last year.	Average quality compared with last year.	Product compared with last year.	Average quality compared with last year.	Product compared with last year.	Average quality compared with last year.	Product compared with last year.
Maine	11.2	13.3	8.4	11.2	.....	.....	.....	.....	7.8	12	10.7
New Hampshire	9.5	11.3	6.6	10.3	.....	.....	.....	.....	8.5	11	10.1
Vermont	11.3	11	9.5	11.1	.....	.....	.....	.....	9.6	11.4	10.1
Massachusetts	9	11	7.3	9.2	.....	.....	8.6	9.5	8.5	10.8	8.7
Rhode Island	8.6	10	7.3	10	.....	.....	.....	.....	10	11.3	10
Connecticut	8.5	11.2	6.2	8.7	.....	.....	9	10	7.7	11	8.2
New York	11.8	11.2	8.8	10.3	.....	.....	11	10	8	10.9	9.8
New Jersey	11.5	10.8	8.2	9.2	12.5	12.8	.....	.....	10.6	10.4	9.5
Pennsylvania	11.2	11.2	8.6	9.7	10.6	11	.....	.....	9.6	10	9.9
Delaware	11	10	6	8	8	10	.....	.....	9	10	10
Maryland	10.1	9.9	5.5	7.7	10.7	10.2	9.2	9.2	10.4	10.5	9
Virginia	11	10.8	9.6	10.4	10.3	10.4	11.8	12.3	11	10	9.5
North Carolina	11.5	11.2	11	10.4	12.2	11.2	12.2	11.5	10.6	10.3	12.3
South Carolina	12.7	12.2	9.7	9.8	12	11.4	12	13	12.8	11.7	9
Georgia	12.2	10.9	10.6	10.4	11.7	11	12.3	11.1	11.5	10.5	11.8
Florida	10.1	9.7	.....	.....	8.3	8.1	.....	.....	.....	.....	.....
Alabama	11.7	11.2	9.7	9.8	10.8	10.3	10	9.6	9.2	10.5	9.2
Mississippi	10.1	9.7	9.8	10.2	10	10.3	.....	.....	9.8	10.7	.....
Louisiana	12	10.8	8.5	10	10	9.1	.....	.....	9.7	11.2	.....
Texas	10.3	10.1	10	9.8	10.2	10	9.2	10	11.6	11.3	10
Arkansas	11.6	9.7	11.5	10.5	11.6	11.1	10	10.4	10.2	9.8	10.5
Tennessee	13.2	11	12.2	11.1	13	11.7	11.5	10.8	10.8	9.6	10.8
West Virginia	12	11	9.7	10.3	12	11.1	11.2	10.7	10.8	10.4	11
Kentucky	12.3	12	11.2	10.6	12	11.6	12	12.3	11.1	10	11.3
Missouri	11.8	10.6	9.5	9.4	11	10.2	10.6	10.4	7.1	9.5	9.6
Illinois	16.5	11.3	7.7	9.5	11.3	10.9	10.6	10.5	6.9	10.9	9.5
Indiana	15.5	13	5.5	8.8	9.9	10.5	9.9	10.8	8.1	10.9	10.7
Ohio	13	11.6	7.4	9.8	10.7	10.8	9.5	10.4	8.4	10.9	10.4
Michigan	13.5	11.9	7.6	9	9.6	10.5	10	10.2	9.5	10.8	10.6
Wisconsin	13.3	12.5	6.9	8.8	.....	.....	10.8	10.3	9.5	10.9	9.7
Minnesota	12.3	11.5	6.6	8.8	.....	.....	.....	.....	10.5	11.2	10.1
Iowa	11.9	11.4	10.4	10.5	10.8	10.4	9.3	10.3	8.5	11	10
Kansas	9.8	9.3	13.4	9.9	14.2	10.3	9.7	10.2	10.8	9	11.6
Nebraska	10.9	10.2	10.4	9.9	10.7	10.2	.....	.....	8.6	8.5	10.7
California	9	9.7	8.9	8.8	10.2	9.5	10.6	10.3	11.2	10.4	9.6
Oregon	12.2	10.4	8.6	10.2	.....	.....	8.6	8.5	11.5	11	9.3

Condition of the crops, &c., on the 1st day of November, 1870—Continued.

STATES.	PEAS.	BUCK-WHEAT.	FLAX.	COTTON.		SORGHUM.	SUGAR CANE, (not sorghum.)	GRAPES.	APPLES.	PEARS.	CRAN-BERRIES.
	Product compared with last year.	Product compared with last year.	Product compared with last year.	Indicated product compared with last year.	Indicated product (lint) per acre, in pounds.	Product compared with last year.	Indicated product compared with last year.	Product compared with an average crop.	Product compared with an average crop.	Product compared with an average crop.	Product compared with an average crop.
Maine	10.2	9.5						11	12.6	11.4	10.1
New Hampshire	9.6	8.7						11.2	14.3	11	9.3
Vermont	10	8.1						12.5	12.5	10.6	
Massachusetts	10	6.6						11.1	14.8	11	5
Rhode Island								10.6	12.5	12.3	
Connecticut	9	6.5				6.5		10.2	15	10.7	9.3
New York	9.5	8.8	9.8					11.7	11.6	9.4	10
New Jersey	10.5	8.8						10.5	14.6	11.7	8.5
Pennsylvania	9.6	9	9.4			8.5		10	8.4	7.7	10.5
Delaware	9	10	10			8		6	12	11	
Maryland	9	8.7				9.2		9.4	8.9	9.2	
Virginia	9.2	10.2	10	9	165	10		10	10.6	9.5	
North Carolina	10.2	10.5	9.8	11.6	175	9.5		9.6	11.5	10.1	
South Carolina	13.8			12.3	170	12.3	10.5	11.5	11.5	11	
Georgia	12.6			12	173	11	10.3	10.2	10.3	10	
Florida	9.5			12.5	165		10.3				
Alabama	10.3			11	155	7.8	10	8.7	9.2	8	
Mississippi	10			10.8	205	10	9.6	9.2	9.7	8.6	
Louisiana	9.5			11.2	252		13				
Texas	10.3			13.1	275	10.3	13	7	10.2	7.6	
Arkansas	14.8			11.9	255	10.2		9.8	4.9	5.1	
Tennessee	10.5	10.6	10.3	11.2	190	11		9.6	11.4	9	
West Virginia	10	9.4				9.8		10.3	6.3	6.5	
Kentucky	10.8	10.6	10.1			10.6		11.7	12.5	11.1	
Missouri	9.9	11.2	9	10	200	10.9		10.8	4.5	5	
Illinois	9.3	12.2	9.8			11.1		11.4	8.3	7.9	
Indiana	9.9	10.2	9.6			10.8		11.1	5.4	7.6	11.3
Ohio	9.6	9.5	10.3			10.8		12.3	7.5	7.6	
Michigan	10	10.6	11.5			11.5		10.1	10.3	7.3	10.5
Wisconsin	9.8	11.9	10.4			10.1		10.6	8.8	9.5	10.7
Minnesota	10.1	10.3	8.1			10		11	9.8		7
Iowa	9.5	12.5	9.2			10.9		10	7.7	8.4	
Kansas	12.9	11.3	10.5			13.8		10.7	6.9	6.2	
Nebraska	9.5	8.1				10		10.8	6.2		
California	9.3	10.3	13					12	8.5	7.8	
Oregon	8.8	8.7	12.5					9.7	6.8	7.7	

NOTES ON THE CROPS.

Neither the general public nor our correspondents should expect to see notes from all the counties represented in the monthly reports. A thousand returns are condensed into a single table, and scarcely one in a score presents additional matter requiring separate mention; and a hundred may include remarks of the same tenor, which would be dreary enough if presented in one monotonous string. Yet they are useful in obtaining more accurate facilities for a bird's-eye view of the whole field, and many are worthy of special record for their intrinsic importance.

CORN.

Aroostook County, Me.—The idea that the season in this county is too short and cold for the successful cultivation of Indian corn is giving way as experience demonstrates that nineteen years out of twenty it is a safe crop.

Greene County, Ala.—Now that cotton is low and corn is in demand, all see the folly of planting largely of the former and sparingly of the latter. There seems to be a determination to plant more corn and less cotton in future.

Clarke County, Ala.—Corn was neglected and will not exceed the crop of last year. More attention will be given to provision crops another year.

Fayette County, Tenn.—Crop insufficient for home consumption; due to the increased acreage in cotton, at the expense of the cereals.

POTATOES.

Aroostook County, Me.—An agreeable disappointment in the crop—about the usual yield, while the quality is better than for years. Among new varieties the Early Rose ranks highest. One man planted 2½ bushels and harvested 145 bushels.

Grafton County, N. H.—The dry weather caused a great falling off. In towns where last year 12,000 to 15,000 bushels were made into starch, this year only 5,000 to 6,000 will be manufactured.

St. Louis County, Mo.—Almost an entire failure. Destroyed by the Colorado bug, except in rare instances, where the bugs were picked off or destroyed by the sifting of Paris green on the vines.

Genesee County, Mich.—Potato bugs in immense numbers, but they do not appear to have materially affected the growth or quality of the tubers. (The variety of insect not named.)

Muscatine County, Iowa.—The growth made within the past month (October) is wonderful, and the crop is a large one, in many instances reaching 300 bushels to the acre. The Peach Blow is the favorite.

BUCKWHEAT, FLAX, ETC.

Grand Isle County, Vt.—Buckwheat made large growth, but did not fill well.

Essex County, Mass.—The crops of onions, beets, mangolds, carrots, cabbages, fall about thirty per cent. short of an average, in consequence of drought.

Indiana County, Pa.—A reasonably large crop, but inferior in quality.

Columbia County, Pa.—Buckwheat crop almost ruined by the drought.

Cecil County, Md.—Buckwheat much injured by the hot sun of September.

Henrico County, Va.—Buckwheat a complete failure.

Surry County, Va.—Peanuts a sorry crop. Few good peas; many rotted before digging; field peas a short crop.

New Hanover County, N. C.—Ground peas an average in quality and above in quantity.

Mississippi County, Mo.—Fine crop of castor-beans; their culture on the increase. Also, fine crop of broom-corn, the culture of which is rapidly increasing.

Clinton County, Ill.—Fine crops of castor-beans in this county for the past four or five years.

Montgomery County, Ill.—An enormous yield of turnips and pumpkins, exceeding all demands.

Columbiana County, Ohio.—The large increase in the flax crop is attributable to the fact that a flax mill has been established in the county.

Columbia County, Wis.—Light yield of hops; few yards properly cultivated; price, 8 to 10 cents; crop picked in good condition.

Perry County, Kansas.—In quality the peanut crop has never been better.

Humphreys County, Tenn.—Fine crop of peanuts, harvested in good condition.

FRUIT.

York County, Me.—Greatest apple crop ever gathered in this county; the best have been sold or stored. Every available cask has been filled with cider. Large quantities have been put away to freeze for the cattle, and yet 10,000 bushels will rot on the ground in this county.

Burlington County, N. J.—Apples a very uneven crop; large yield in upper and central sections; in lower part of the county many orchards yield scarcely any.

Kent County, Md.—Though the peach crop was below an average, prices were high; probably $100,000 were brought into this section of the county from the sale of the crop.

Jefferson County, Mo.—The warm weather of September matured the grapes finely, and made them rich in sugar; the wine is very fine.

Cole County, Mo.—Wine is plenty and good; mostly of Concord and Virginia seedling; Concord will be good at $1 per gallon, wholesale.

Hancock County, Ill.—Excellent crop of grapes; many vineyards near Warsaw have averaged 5,000 pounds per acre; this county has about 1,600 acres in bearing.

Fond du Lac County, Wis.—Apple buds will be injured by premature growth; early varieties are nearly ready to open.

Douglas County, Neb.—Fruit has not in general succeeded north of the Platte River, in Nebraska, to an extent that would as yet justify the hope that the section is suitable for any but extra hardy varieties.

Walla-Walla County, Wash. Ter.—This valley is proving to be a splendid county for grapes; crop very fine this year; bunches are yet hanging on the vines drying up so as to be very fair raisins.

Thurston County, Wash. Ter.—The Indians are bringing in large quantities of cranberries.

TOBACCO.

Granville County, N. C.—Best crop in ten years.

Davie County, N. C.—Very fine and fully double any previous crop.

McCracken County, Ky.—The immense number of worms has materially reduced the quantity of the tobacco crop.

Ohio County, Ky.—First frost to stain tobacco on November 1.

Dubois County, Ind.—Ripe, cut, and housed before frost.

Jefferson County, Neb.—A few trials of tobacco have been made in gardens with entire success.

Austin County, Texas.—The second cut of tobacco, which frequently exceeds the first in quantity and quality, is almost worthless, owing to the drought.

Dyer County, Tenn.—Largest crop for some years; quality unusually fine.

Robertson County, Tenn.—Crop housed in fine condition, but the loss of tobacco from the burning of barns is unprecedented, caused, it is thought, by dry weather in September firing the lower leaves, making them light, chaffy, and combustible.

GROWING GRAIN.

Beaver County, Pa.—Greater breadth of wheat sown this fall than for several years; sown two weeks earlier than usual. Considerable complaint of the fly.

Butler County, Pa.—Wheat and rye never more promising.

Queen Anne County, Md.—Acreage in wheat much larger than usual, but commercial fertilizers have been used sparingly.

Henrico County, Va.—Owing to the drought seeding has been slow and badly done, and the wheat is coming up badly.

Cumberland County, Va.—Wheat acreage much larger than last year. Weather fine.

Smyth County, Va.—Very large area of wheat sown, and it is looking well.

Knox County, Tenn.—In several localities the fly is destroying the young wheat as fast as it comes up.

King George County, Va.—Thought to be 40 per cent. decrease in acreage.

Hardin County, Ky.—Wheat looking better than for some years at same date.

Scott County, Ky.—Winter wheat weak, but improving.

Shelby County, Ky.—Wheat and rye growing finely. Acreage in wheat decreased one-half, owing to low price of the grain and the uncertainty of the crop. Rye acreage increased one-third.

Christian County, Mo.—Small grains backward, but improving.

Franklin County, Mo.—Wheat sown in September is looking well.

Scott County, Ill.—Large breadth of wheat sown. Never looked better.

Pike County, Ill.—Winter wheat never looked better.

Tazewell County, Ill.—Fall grain in splendid condition.

Lawrence County, Ill.—Wheat looking unusually well. Decreased area sown.

Parke County, Ind.—Early sown wheat damaged by the fly. Twenty per cent. increase in the acreage.

Ohio County, Ind.—Decreased area sown to winter grain, owing to the dry weather.

Van Wert County, Ohio.—Fall wheat never more promising, with a large increase in acreage.

Oakland County, Mich.—Wheat has a fine growth, the best for a number of years.

Adams County, Iowa.—Wheat, sown August 17, has made an over growth, and it is feared that a cold winter will kill it.

Woodson County, Kansas.—Fall-sown wheat never more promising; nearly double the usual acreage sown in this county. The writer has

been personally over the different sections of southern Kansas, and has not seen a poor field of wheat.

Nemaha County, Kansas.—Largely increased area sown to wheat.

Stanislaus County, Cal.—A much larger breadth of land will be sown to wheat and barley in this county this year than in any former season, not less than 300,000 acres. Five years ago the county did not produce 40,000 bushels of wheat.

EXTRACTS FROM CORRESPONDENCE.

RICE IN SOUTH CAROLINA.

Georgetown County, S. C.—Rice is the specialty of this county. In 1869, the acreage of the county was 16,000. In 1870, 15,123, being 877 acres less. The product for market in 1869 was less than 600 pounds per acre. For 1870, it is estimated that the crop is shorter than last year. The early harvest was favorable. The latter part was very wet, with high tides, and a great deal of the crop was damaged upon the stubble by rains and the overflowing of the embankments. The ante bellum crops of this county averaged 40 bushels of 45 pounds per acre. Since 1865, the crop has never reached an average of 25 bushels. The acreage of tide lands formerly cultivated was about 40,000. Eight of every ten planters have either lost money or made no surplus from rice culture, since 1866. Labor is scarce, and decreased acreage is a consequence. In 1868, about 12,000 acres were planted. It now requires three bushels of seed per acre for planting; formerly two and a half was the average.

RICE AND GRAPES IN UTAH.

St. George, Utah.—The two samples of rice sent me from the Department last spring, were planted in drills early in May, on about a rod of ground, from which I gathered a peck of nice, plump grain the last of September. The tallest variety yields the best. Rice is a success here, and will yield equal to wheat. The bene plant has also done splendidly, and yields about as much as wheat, producing of nice sweet oil, two gallons from the bushel.

The Verdel grape is now in its prime. The new seedling grape, Rio Virgin, is as plump, fresh, and fine on the vine as at any time in the year, and will hang till Christmas. The White Nice and the Gros Calmun, are also plump and fair. Our grape crop is well ripened, and wine-making is completed. In this (Washington) County, not less than 20,000 gallons of a wine, superior to former crops has been the result. Some of the juice has measured 17 with the saccharometer. The Muscat-Hamburg has proven the richest, then the Old Mission, Black Muscatel, &c.

PREMIUM WHEAT.

Marshall County, Ind.—At our county fair there was a premium offered on four acres of the best corn, and four entries were made. The first four acres averaged 88 bushels and 62 pounds per acre, 70 pounds per bushel; the second averaged 83 bushels per acre; the third, 78 bushels; and the fourth, 73 bushels. The crops were raised on land without manure—heavy timbered land, sandy soil. Corn all ripe and dry before frost.

THOROUGH CULTURE.

Muscatine County, Iowa.—The past season, together with that of last year, has taught farmers the benefits that arise from thorough culture. The old, but none the less true adage, "plow deep while sluggards sleep," &c., has been most thoroughly exemplified. We trust the day of "slip-shod" farming is about at an end. When we more thoroughly realize that working one acre at a profit, is better than working two at a loss, then will have arrived the agricultural millenium.

THE COLORED AGRICULTURISTS IN LOUISIANA.

St. Tammany County, La.—I have just returned from a six days' ride in the county and was much surprised at what is being done on the poor pine lands. Heretofore I have only visited those farms and plantations on the bayous and rivers. I found through the parish a large number of colored men who have taken the benefit of the homestead act and settled miles from any of the villages, consequently being dependent on what is produced from the land. They have succeeded this year in producing potatoes and corn enough for the winter and spring use. In most places they build fires on the land they wish to cultivate the following year, in order to attract the cattle which are at large in the woods. They also wheel out muck from the swamps in the summer to mix with the cattle manure. Some use fine straw also. They break up the land in the fall, covering with each furrow the straw placed there. The next spring they plow again and in a few days after throw it into ridges and plant. On some of the older farms I saw as good cotton as is generally raised on bottom land. This is brought to market thirty miles by ox teams. Nearly all raise their own meat and send dozens of eggs and chickens to market, besides hundreds of pounds of honey. I saw one colored man who had over two hundred hives of bees, and he told me that he always gets at least twenty-five cents per pound for his honey.

THE "GARDEN OF LOUISIANA."

New Iberia Parish, La.—We possess here the most fertile soil in America that is not subject to inundation, and a climate unsurpassed for promoting vigorous vegetable growth. The five parishes, (St. Mary's, Iberia, St. Martin's, Fayette, and Vermillion,) formed of the old Spanish parish of Attakapas, comprise the richest lands, the most thorough natural system of navigation, and the greatest natural and commercial advantages of any equal surface in the world. This fact is comparatively little known; but as it is susceptible of clear and easy proof, all that is needed is an opportunity of affording the greatest publicity to the same to render Attakapas the aim and center of a prodigious emigration, and the consequent prosperity and happiness of our section. I am a native of Illinois, and my eyes have ranged over the reputed "choice spots" of the Union, but no other can, in my opinion, bear comparison to Attakapas, justly the "garden of Louisiana."

DESTROYING TOMATO AND OTHER WORMS.

Cecil County, Md.—I see recommended the *picking* off of the tomato and other worms and killing them with the foot; but we know of a much better plan. When the worms are bad we kill them by merely

clipping them in half with shears, scissors, or any similar sharp instrument—a sharp knife will do—and let them fall off the vine at their leisure. This plan will commend itself to squeamish persons who are afraid to handle the repulsive looking insects. It is also the quickest way of killing them.

DISEASES AMONG STOCK.

El Dorado County, California.—Here, as in other parts of the State we have more or less scab in our flocks at some seasons of the year, but the disease is easily cured, and those who are most careful are troubled least with it. By the use of the following precaution a flock may be kept entirely free of the disease: To two gallons tobacco water mix one-half pint spirits turpentine, one pint lard oil, and apply, when warm, with a sponge. When a single case may be noticed in the flock apply the above remedy at once, and it will prevent hundreds of other cases. A single application will arrest the disease.

We have another disease, the cause of which we have not been able to ascertain, and for which we have found no remedy. The symptons are as follows: First. The sheep acts as though it was blind, walking around in a small circle, always in the same direction, and appears terribly cramped, being twisted nearly double. It continues walking around until disabled by the cramp, when it struggles on the ground, generally about ten minutes, and then recovers so that it is able to get up and follow the flock. It may linger for a week, having spasms each day, and appears crazy all the time. I have known a few cases to entirely recover, but eight out of every ten prove fatal. The cramp appears to be along the spine to the brain. I have tried a number of remedies, but all have failed. The disease is most prevalent during the months of September and October. We have lost about two per cent. of our flock within the last two months by this disease. I have never noticed this disease in any other part of the State, though I am informed that it prevails all along the coast to Los Angeles. There are various opinions as to its cause. It is probably caused by some poisonous herb.

Fairfax County, Va.—"Hog cholera" has prevailed to a considerable extent in the western portion of the county, some farmers losing their entire stock. Constipation of the bowels attends the disease, and the only remedy (which has, by no means, always proved successful) is salts; three table-spoonfuls at a dose, for a hog weighing one hundred pounds, followed by the same quantity of castor oil, twelve hours after.

Spencer County, Ky.—Hog cholera prevails to a greater extent than it has for ten years. No remedy thus far discovered.

Montgomery County, Md.—The disease among the hogs continues its ravages, but the cold weather will, we hope, abate, if not stop it.

Livingston County, Ky.—Some hog cholera in the county.

Knox County, Tenn.—The cholera has appeared among the hogs in certain localities, but only in a few places.

Campbell County, Tenn.—Hog cholera is abating.

Jefferson County, W. Va.—The "chicken cholera" is still doing some damage in our county. We have lost about twenty or twenty-five fowls; others have lost small numbers, perhaps four or five hundred in the county.

Blue Earth County, Minn.—A new disease has appeared in the southern part of the county among young cattle. Symptoms—swollen joints and loss of appetite. The disease prevails among yearlings and calves. No remedy has been discovered as yet.

SOUTHERN AGRICULTURE.

The Commissioner of Agriculture, accompanied by the statistician of the Department, visited the city of Augusta, Georgia, on the last week of October, in response to invitations to represent the Department of Agriculture at the convention called as a "Congress of the Cotton States," and to observe the progress of agriculture as indicated by the agricultural exhibition held at Augusta at the same time.

The convention was largely attended by delegates from societies of all the Southern States; it was organized by the selection of Hon. H. V. Johnson, of Georgia, as president; speeches were made upon the necessity of a wider range of production; committees were appointed for practical work *ad interim;* and Selma, Alabama, was designated as the place for the next annual meeting.

The exhibition was quite successful, in material and attendance—the stock department alone being comparatively meager in quantity and quality.

Addresses were made by the president of the Augusta society, Dr. Tutt; by Judge James Lyons, of Richmond, Virginia; by Mr. Compton, of Maryland; and by Hon. Horace Capron, Commissioner of Agriculture. The latter was as follows:

Mr. President, and Ladies and Gentlemen: It is with pleasure that I have accepted your invitation to be present and to coöperate with you for the development of your industry. In the exhibition of the Cotton States Association, as witnessed yesterday, I see an earnest of the spirit of progress which I hope may animate the practical efforts of that association and of the congress here assembled. In the admirable address of Dr. Tutt, your president, I was delighted to see embodied the principles which underlie true industrial progress, and I heartily commend the practical suggestions of the orator of the day, Mr. Compton, looking toward larger production and fewer acres.

I thank you for this opportunity of presenting, very briefly, a few suggestions concerning the immediate pressing agricultural needs of the South. You will permit me to express my convictions plainly, in a spirit of utmost kindness and sympathy. You knew well, and have boasted long, the advantages and resources of the "cotton States;" the great variety and productive capacity of your soils; a delightful climate, so varied by elevation and configuration of surface as to be adapted alike to the fruits and fibers of the tropics and all the products of the temperate zones; a wealth of precious and useful metals sufficient to supply for generations the material for the artisans of the world; an amount of water-power wonderful to contemplate, and the largest supply of timber and wood to be found within the United States. Yet you are constantly and rapidly reducing the fertility of those soils, and turning out farm after farm to swell the area of the hundred million acres of exhausted lands. You ignore the marvelous capabilities of your sunny climate, in neglecting the myriad forms of production to which elevation, latitude, situation, soils, and various natural peculiarities contribute so munificently. Your minerals are hidden in the bowels of the earth, waiting to respond to the call of enterprise and the magic touch of labor; your water-power, in its silent majesty or resistless energy, goes "on forever" in its thousand lines of march to the sea, occasionally reminding you, as at Richmond or in the Shenandoah, of its mighty capabilities which you have so long permitted to run to waste.

Your forests are solitudes, unblest with the hum of busy and enriching labor, while your very hoe-handles are often brought from distant States, and your finest timber is remorselessly girdled that your lands may be cleared by that slow woodman, grim decay.

You possess a tract of country fit for a mighty empire. It is actually a wilderness, almost a solitude. Its railroads, turnpikes, farm improvements, scientific husbandry, manufactories, model school-houses, and churches are yet mainly in the future. All this work is before you. It is true the country is comparatively new and very wide, and the workers are few; but parts of it have been settled for two hundred years, and yet scrubby pine forests grow where the settlers grew their supply of corn and tobacco. Has improvement been commensurate with your resources and in proportion to the numbers of the population; and has population kept pace with other less favored portions of the country, or made such advances as might reasonably have been expected with these immense resources? The truth compels me to say *no;* your consciousness

echoes the negative. Why is it? The reasons are many. Prominent among them are these:

First. A wasteful and slovenly system of agriculture, the curse of our whole country, has been practiced in the cotton States.

Second. The extension of the raw products of agriculture by manufacture has been ignored or discouraged, culture has been restricted to a few crops, and the policy of buying nearly everything needed to eat, drink, or wear has been encouraged.

Third. Labor has been mainly restricted to a servile class, becoming a badge of dishonor rather than the crown of glory that it is; a large portion of the people have formerly lived in comparative idleness or unproductive employment; and the intellect and ambition of the influential or ruling class has been spent upon politics to the neglect of material development.

You have sometimes held commercial conventions while destitute of any commerce of your own. It is a significant sign of the times that you now, an exclusively agricultural people, assemble to consider the means of agricultural improvement and the general prosperity of your section.

As you have listened to my frank detail of obstacles to progress, permit me with equal brevity to note certain means of recuperation.

A RESTORATIVE SYSTEM.

My first counsel would be, practice a restorative instead of an exhaustive system of agriculture. A system that involves abandonment of lands and removal to new scenes is unworthy of the age and a reproach to modern civilization.

No man is worthy to be a farmer who does not annually leave his land in better tilth and strength than he found it. The intellect must share more largely with muscle the toil of agriculture; machinery directed by skilled labor, and propelled by brute force, and also by the mighty power of steam, must take the place of expensive and inefficient human strength. This change, as I said in this State a year ago, "involves the necessity for smaller farms, better culture, liberal use of manure, rotation in crops, and a larger working capital in proportion to permanent investment." You are already spending millions annually on the old lands of the Atlantic States for commercial fertilizers. While I would commend a judicious expenditure in this direction, I would make this a basis of a practical rotation with a course of grasses and other restorative agencies of scientific agriculture.

The business of agriculture should be an industry and not a speculation. The insane pursuit of specialties has long been a curse to American agriculture. A whole community runs wild upon hops, when selling at fifty cents per pound, and in two years they are scarcely worth the price of picking, and extravagance, begotten of high expectations, is forthwith followed by bankruptcy. Wheat brings $2 per bushel, and whole States become wheat-fields, while every other interest languishes, until the bread crop becomes so abundant as to be fed to swine in preference to shipment for human food. The sheep with wool at $1 per pound, holds high place in popular esteem, but is kicked from the pasture by every Randolph of the farm at the first indication of a heavy decline in the value of its fleece. In your section cotton, a great boon to your agriculture as a constituent in your aggregate of production, may become an unmitigated evil if left to usurp the place of all other crops. The crop of last year produced $100,000,000; more than fifty per cent. larger than ten years ago. Three millions of bales may command a profit of $40 per bale, while five millions may not bring a dollar above their cost. But present profit is not the main consideration. The increase in value and enlargement of the productive capacity of the soil, by a judicious rotation, including the restorative influences of green-cropping and cattle-feeding, is an increase of capital, a source of larger annual income, and an addition to the inheritance of one's children. It not only insures a profit from cotton culture, but enables the planter to pocket the entire proceeds of its sale, other products feeding man and beast. This leads me to another word of counsel, namely:

PRODUCE MORE AND BUY LESS.

As an individual grows rich by what he saves rather than by what he makes, so a community thrives by the amount of its surplus more than by the extent of its sales. How often has the money received for a crop of cotton failed to discharge indebtedness incurred for all other supplies? How many plantations have been mortgaged to secure such debts? The day will come, if wise counsel is heeded, when the products of cotton will be *all surplus*, other products paying the expense of the farm. I have received, officially, abundant testimony, from individual successes and failures, of the superior profits of mixed husbandry with cotton. I am positive in the conviction that the permanent prosperity of these States depends upon a more diversified agriculture. While it is true that a large cotton crop may produce actually less money than a small one, no sane man will question the political economy which adds to this source of revenue many others, which, together, make an aggregate many times larger.

For some years to come the cotton manufactures of the world cannot contribute to the industry of these States more than two or three hundred millions of dollars per annum; while the total production, with the variety required to realize the highest capabilities of soil and climate, should command a thousand millions, and two thousand might be obtained within a period of ten years, if the whole population, with recruits from other States and from Europe, should unite all their efforts and their industry for the accomplishment of so grand an object. The combined value of all other products is even now materially larger than the value of cotton, but the proportion should be increased until it shall stand at least five to one. The cheapest beef and cheapest wool produced in the country are now the product of the grasses of the Gulf States.

The annual sales of animal products should soon be made to exceed greatly the value of the cotton crop. The wine industry of France produces three hundred millions of dollars annually, and supports a population of six millions. Then why should not your sunny slopes, best suited to wine production of any section of the continent east of the the Rocky Mountains, compete with the foreign vineyards, at least in our own markets?

There is no reason why we should send abroad for a pound of sugar, though our home production was last year but ten per cent. of the consumption, when Louisiana alone has suitable lands of sufficient area to supply the present wants of the country. Your fruits, in wonderful variety, including those of the tropics, the products of which figure largely in our imports, should annually add millions of dollars to the wealth of the country. Scores of new and useful plants should be added to the list of those already in cultivation. I am yearly adding many through the Department of Agriculture, among the most promising of which, the present season, are the Corchorus (or jute) and the Cinchona, which yields the quinine. I shall continue these experiments of acclimatization, hoping to render you material aid in your efforts in diversifying your agricultural industry. In close connection with this idea of variety of production, permit to me present my third item of counsel.

MANUFACTURE YOUR OWN COTTON.

If England, by the magic of labor, can make a dollar's worth of your cotton produce two dollars, and if France, by still more delicate manipulation, can make it yield three, why should not your people, with willing hands to work, and abundant water and fuel for power, manufacture a large portion of your crops, at least into yarns and coarse fabrics, and thus add to the annual value of your industries a hundred millions more? Thus you may save freight, storage, commissions, the profit of manufacture, and build up local markets to consume more of the edible products of your agriculture.

Here, in Augusta, you have furnished a notable illustration of the feasibility and profit of manufacturing, in an enterprise of magnificent proportions, two-thirds of the capital of which has come from its own net earnings. You have already other similar works, and should establish them in every direction, enlarging them from their own profits, until a large share of your cotton shall be manufactured within your own borders.

Manufacture is allied to agriculture, while commerce is an expensive non-productive go-between. There are few interests of agriculture which do not involve manufacture. In dairy farming, milk is sold with no aid of manufacture, except as it is "extended" by aid of the pump, but cheese and butter are the products of manufacture, which last year yielded the value of $246,000,000. Flax and hemp can only reach the market through certain processes of manufacture; wheat must be thrashed, corn shelled, hops carefully kiln-dried; so with many other crops; indeed, the farmer must necessarily be a manufacturer. High farming is always and only found in connection with manufacturing skill in extending the raw products of agriculture; and no purely agricultural nation can expect to attain wealth, a high state of civilization, or great political power. These are facts which should be carefully pondered and promptly acted upon.

Why is not the South to-day the great manufacturing section of the country? It is far better adapted to such an industry than any other section. The answer may be found in a paragraph from a former official statement emanating from the Department of Agriculture relating to this section:

"The path of progress has been equally open to all; laws supposed to favor a diversified industry have been applicable to all States alike; the best water-power and cheapest coal are in States that make no extensive use of either; milder climates and superior facilities for cheap transportation have furnished advantages that have not been transmuted into net profits; and yet, such communities, daily inflicting irreparable injury upon themselves by neglecting the gifts of God and spurning the labor of man, are wont to deem themselves injured by the prosperity flowing from superior industry and a practical political economy."

As a closing suggestion, one in which the whole future prosperity of your States is involved in an eminent degree, permit me to implore you,

GIVE PROFITABLE LABOR TO ALL YOUR PEOPLE.

Depend not upon the coolies of China or the people of Europe, until all your people, of whatever color, condition, or capacity, have full employment for mind and muscle in developing the wonderful capabilities under your control.

The practical question of the day is not, Where shall we procure more labor? but, rather, How can we utilize and profitably employ the varied capacities, tastes, and inventive powers of every individual of our present population? What can each accomplish with the best results? What can be done for the employment of men practiced in no skillful employment? What for indigent women, and even children, dependent upon their own exertions for subsistence, for an education and advanced social positions? The State that furnishes employment for every son and daughter, labor suited to every capacity and taste, heavy toil for the unskilled and plodding, dextrous and delicate manipulation for the artistic, effort with soul in it for the intellectual, will become instinct with life, energy, progress, wealth, and contentment. Then labor will be cheerful, toil a pleasure, and its beneficent results enhanced beyond the highest expectation. Such results can never follow the practice *of a few rude industries.*

It is only a truism to say that the wealth of a country is the aggregate of its labor beyond its requirements for subsistence; yet the truth of the saying is not sufficiently realized. The largest results in accumulation can, therefore, only be obtained by securing the best and most effective efforts of every individual. All must unite, then, and, with heart and will, mind and muscle, contribute to the great end of enriching, beautifying, and blessing this glorious land.

I am satisfied that a new era is dawning; that the rule of one idea is weakening; and that the diversification of production has already commenced, opening a career of activity and a vista of beauty unwitnessed in the brightest days of this nation.

EXPERIMENTS WITH DEPARTMENT SEEDS.

William N. Byers, editor of the Rocky Mountain News, published at Denver, who has distributed samples of Department seeds, and collated results of experiments, sends the following statements:

From Thomas Skerritt; farm six miles south of Denver, on upland prairie, one mile east of Platte River. The ground has been under cultivation five years; never sub-soiled or manured.

No. 1. Ears of large yellow corn; planted May 15; plowed three times; irrigated three times; ripe September 1 to 10; field of eight acres; yield, 56 bushels per acre.

No. 2. Morton white potatoes; specimens six by three inches; planted about May 15; plowed and irrigated three times; ripe October 1; yield, 250 bushels per acre.

No. 3. White winter Touzelle wheat, from France, through the Department of Agriculture; sowed in November 1869, so late that it did not come up until spring; irrigated twice; ripe August 15; from the small quantity grown is satisfied that it will yield over 40 bushels per acre.

No. 4. White spring wheat, sowed early in March; irrigated three times; harvested August 1; 17 acres gave 30 bushels per acre. After coming up in March, it was considerably injured by frost, "the first time I have known such a thing to occur in Colorado."

No. 5. A single white potato, from the Platte Valley, twenty-five miles north of Denver; size, about 6 by 3½ inches, and very firm; grown on bottom land, without irrigation; yield, 250 bushels per acre.

No. 6 to 12, inclusive, are from the farm of Peter Magnes, seven miles south of Denver, on the east side of the Platte, part in bottom and part in upland. Altitude above the sea, about 5,300 feet. His farm has been well cultivated for twelve years, and some portions of it have probably received a small quantity of manure.

No. 6. Siberian spring wheat; "this is our best spring wheat;" ground plowed in the fall; sown April 10, 12 bushels on 17 acres; not irrigated; harvested August 9; total yield, 930 bushels, or almost 55 bushels per acre. The seed was soaked six hours in blue-stone water, then spread upon the barn-floor, and quick-lime sifted over it before sowing.

No. 7. Touzelle winter wheat; first year from the Department of Agriculture; sowed November 20, near some brushy ground, which was infested with rabbits, that destroyed much of it; saved only half a bushel from one package of seed; the sample is excellent.

No. 8. Tappahannock fall wheat; second year from Department of Agriculture; sowed November 20; four bushels, drill measure, on four acres; irrigated twice; date of harvest not given; total yield, 150 bushels, or 37½ bushels per acre.

No. 9. Arnautka spring wheat; grown in 1869; third year from Department of Agriculture. First year, the yield was one gallon; the second, 31 bushels from one-third of an acre; hoed twice, but not irrigated; third year, sowed 25 bushels, drill measure, on 25 acres; required no irrigation; harvested 1,150 bushels. Millers found it too hard to grind, and it was served for chicken feed. None sowed since; a quantity of it yet on hand.

No. 10. English Excelsior oats; second year from Department of Agriculture; land plowed in the fall; planted April 21; four bushels, drill measure, on four acres; irrigated once; harvested 232 bushels.

No. 11. Prussian oats; second year from Department of Agriculture; planted April 13, on fall plowing; two bushels, drill measure, on two acres; irrigated once; harvested August 2; 106 bushels.

No. 12. Swedish oats, from the Department of Agriculture; sowed April 13, on fall-plowed land; two bushels, drill measure, on two acres; irrigated once; harvested August 10; 166 bushels. The planting was about three weeks too late, as the plants grow very slowly in the first part of the season. It is hardier than the common oats, and withstands the spring frosts much better.

No. 15. Siberian spring wheat; grown on high, sandy prairie; fifth crop from the same land; plowed the ground and harrowed in wheat about the middle of April; did not irrigate; harvested August 10; average yield, 25 bushels per acre.

No. 16. Two-rowed, bearded spring barley; seed from the Agricultural Department; grown on rich bottom land, spring plowing; sowed April 20; not irrigated; harvested August 5; yield, 50 bushels per acre.

No. 17. Norway oats; land plowed in the fall; harrowed in the spring; oats sown April 6; 40 pounds to the acre, and harrowed twice; irrigated once; harvested July 20; yield, 83 bushels to the acre.

No. 18. Surprise oats; grown on high, sandy prairie, following sugar beets; plowed in the spring; planted about May 20; not irrigated; harvested about September 10; yield, 50 bushels per acre.

San Pete County, Utah.—A considerable amount of Tappahannock wheat has been sowed this fall. That species of wheat is a decided success here. It has to be sowed last of August or first of September, so as to be irrigated once before the weather gets too cold.

The Swedish black oats yielded sixteen quarts to the square rod; which will all be sowed again. The black oats have been our preference, but this Swedish oat grows a good deal thriftier, and it is thought to be better than the black oats. The length of the straw averaged five feet and nine inches.

The Saxonian barley had good heads, but the straw grows too short

for binding, and on that account too much grain is lost between and in the water drills.

Henderson County, Illinois.—About two years ago I received some wheat from the Department, called Russian wheat; I sowed it and harvested a very poor quality of wheat, but the season was very unfavorable. I sowed it again and this year thrashed nine bushels of excellent wheat. It is all sown again this fall and looks fine.

The English turnip seed has given very good satisfaction, also the peas and many other garden seeds. I have distributed the seeds free of charge, and the Department has many thanks for the same.

Columbia County, Oregon.—I received last fall one quart Tappahannock wheat from the Department. Sowed last of September, broadcast. Harvested July 9. Lost in thrashing about 10 pounds; yield 82 pounds. The heads were medium size. Grain plump and larger than those received from the Department. Ripened thirteen days earlier than any other wheat raised here. The White Polish wheat was sowed at the same time, but not one-third of it came up. Did not do well.

PREMIUM CORN CROP IN PENNSYLVANIA.

The Brandywine Farmers' Club of Chester County, Pennsylvania, has awarded to David H. Brownson, of Guthrieville, the premium for the best four acres of Indian corn, his crop averaging 127 bushels and 33 pounds to the acre. The height of the stalks varied from 13 to 16 feet, many measuring seven inches in circumference. In his statement to the club, Mr. Bronson said that last fall and spring he applied 100 wagon-loads of unleached livery and barn-yard manure, broadcast, on 25 acres of clover and timothy sward, 50 loads of which were hauled a distance of three miles, all furrowed down in April and the first week in May. On the land on which the premium crop was grown, he applied, in addition to the stable manure, on the sod, three ox-cart loads of hog-pen manure to the acre. After plowing and thoroughly pulverizing the soil, he marked out rows one way 3½ feet apart, dropping the corn by hand, two grains, 15 to 18 inches apart, and applied to each hill a handful of hen manure, ashes, and plaster, of equal parts, covering with hoe May 10. On 12 acres of the 25 cultivated, 500 bushels of lime were applied and cultivated in; the remaining 13 acres had previously been limed on the sod. In regard to the use of fertilizers Mr. Bronson remarked:

> Observation has taught me to believe that farmers who have almost abandoned the use of lime, and substituted many of the various so-called fertilizers, are impoverishing their lands, and have been deprived of their hard earnings, having been induced to purchase by the ingenuity of manufacturers, producing numerous testimonials of their magic results.
>
> If we were entirely dependent upon the patent manures in the market, our land would in time become almost as barren as that of the great Sahara, and our children would be crying for bread. Twenty-five years back, Brandywine and her sister townships were illuminated almost nightly by the light from some lime-kiln in the neighborhood; to-day we find them converted into ice-houses, and the trade entirely in the hands of the few who make it a special business. When we apply lime and barn-yard manure, we need no stakes to mark the result. Their application has long since ceased to be an experiment—the effects are evident. Raw-bone, beyond doubt, is an excellent fertilizer; yet its market value is such that the farmer cannot afford to apply it in quantities necessary for a permanent substitute for lime. An old horse, after having faithfully served the will of his master and paid the debt of nature, is more valuable, properly managed, than one ton of most of the fertilizers in the market. The deposits in the hennery are valuable when mixed in equal parts with plaster, and applied to

corn, or wheat, broadcast. Good shelter for our barn-yards is also one of the very best investments a farmer can make; manure exposed to the sun and drenching rains in the barn-yard is almost worthless, the substance of fertilizing properties having long since polluted some rivulet, and passed into the ocean.

Mr. Isaac L. Sahler, of West Brandywine, raised on one acre 131 bushels and 26 pounds of corn, allowing 70 pounds of ears to the bushel.

THE AMERICAN DAIRYMEN'S ASSOCIATION.

The sixth annual convention of this association will be held in Utica, New York, on Tuesday, Wednesday, and Thursday, January 10, 11, and 12, 1871. The full programme for the meeting is not yet settled upon, but the secretary presents the following as constituting the main features of the convention:

Addresses will be made by the following gentlemen on the subjects specified:

Donald G. Mitchell, of New Haven, Connecticut, "How far and in what way the practical farmer or dairyman can best avail himself of the teachings of science."

Professor George C. Caldwell, of Cornell University, "The manufacture of cheese in Germany, France, Switzerland," &c.

Joseph Harris, of Rochester, New York, "Fattening cows on dairy farms."

The following topics will come before the convention, and short papers, introductory to the general discussion of each theme, may be expected from the gentlemen named in connection with each subject:

Is there a gradual decline in the amount of dairy products in all our older dairy regions? If so, what is the cause and what the remedy? X. A. Willard, of Herkimer.

Is there any way by which patrons of butter and cheese factories can receive credit for the milk delivered according to its actual value, and not according to its weight or measure?

Should not every dairyman practice soiling his cows in connection with pasturage, and what crop or crops are best for the purpose? Harris Lewis, of Herkimer.

What shall be done with the cream which rises upon the milk during the night, in cases where the agitator is not used? L. B. Arnold, of Tompkins.

Grinding curds—is it advantageous or otherwise? Alex. Macadam, of Montgomery.

Management of a good butter dairy. O. S. Bliss, of Vermont, and S. A. Farrington, of Tompkins.

Would the consumption of cheese be promoted in any considerable degree by the more general manufacture of small cheeses? A. Holdredge, of Otsego.

Condensed milk manufacture.

What is the best method for maintaining an even temperature in cheese-curing rooms?

Proper construction of cheese factories as bearing upon the quality of the product, as also with reference to convenience and durability. Dr. L. L. Wright, of Oneida.

Causes of tainted milk, and the remedies.

What have been the lessons of the past year?

Ample time will be allowed for the full discussion of each subject, and members may bring before the convention such other pertinent subjects as they may desire to present for consideration.

THE VALLEY OF THE RIO GRANDE.

Mr. F. E. Starck, secretary of the Esperanza Agricultural Association, Brownsville, Texas, writes to the Department, under date of November 9, that the drought has been severe this year, but that, notwithstanding this, agricultural interests are progressing generally. Cotton, which was planted early, the latter part of January or early in February, has yielded a fair crop. Sugar-cane, though a little backward, still looks as well as the best which Louisiana can produce. The first crop of corn was short, but the recent rains have insured a good fall crop. There is now standing on the experimental farm of the associa-

tion 55 acres of excellent broom corn, which was being cut. It was planted dry, and did not come up until after the first rain in September, some of the seed lying in the ground nearly two months. Also 20 acres of corn, which will be ripe within the month; 10 acres of beans; and 2 acres of seed sugar-cane, which will be left standing until about the middle of December, as frosts rarely occur before the latter part of the month.

From the responses of the officers of the above association to a series of questions propounded by several gentlemen of Illinois, seeking information relative to the resources and capabilities of Cameron County, we condense the following facts: The seasons are not well marked in that latitude; cotton, corn, sugar-cane, potatoes, &c., are planted in February. There are occasional light frosts in December, January, and February, accompanied by cold north winds, lasting one to three days. Cotton picking from June 1 to end of December. Mean temperature from June to the middle of September, 80° F. The heat of summer is always tempered by Gulf breezes. The climate is healthy and congenial to children. The past five years have been very favorable to agriculture. Formerly there were some years of remarkable drought, but ample means of irrigation exist. No Government land in the county. All the lands are well adapted for cultivation or for stock-raising. General aspect of the land, slightly rolling, open prairie, and timber. The prevailing timber is ebony, mezquit, acacia, palm, willow, elm, Mexican ash, hackleberry, and many other smaller but useful varieties. There is a great abundance of land fit for raising cotton, tobacco, sugar-cane, corn, castor beans, grapes, figs, peaches, lemons, oranges, &c. Few running streams, but there are lagoons, and water may be had anywhere by digging. There are sufficient highways in dry weather, but the public roads are not improved. The home consumption affords the market for most crops; Mexico for cotton and sugar; also New Orleans, Galveston, New York, and Liverpool by sea direct. The Rio Grande is navigated by steamboats 400 miles. Neither grist nor saw mill in the county, though there is a demand for both. Native horses, small but hardy, $10 to $30 each; mules, $20 to $40; milch cows, $15; working oxen, $20 to $30 per yoke; beef cattle, $5 to $8 per head; sheep, 75 cents to $1 50 per head; and swine, $3 to $10 per head. The prospect for mechanics is not so good at present as for agriculturists, horticulturists, and stock-raisers. Two newspapers published in the county. The cost of living is much less than in the Northern States. Prime beef sells in the market at 2 cents per pound. Corn, vegetables, and fruit are abundant, and can be produced in great quantities. Clothing (of which little is needed) and household furniture are somewhat higher than at the North. A good family house, with out-houses, &c., of native materials, can be constructed for $100 to $200. Price of unimproved land to settlers, 75 cents to $2 per acre; part cash. Improved land not for sale, except at high prices. Settlers welcomed by the people, and the population is increasing. Churches, a college, and good schools at Brownsville, the county seat. The best route to Cameron County is via New Orleans, per steamship, to Brazos Santiago.

THE RAINY SEASON IN CALIFORNIA.

From a journal kept by Dr. Shaw, of Santa Barbara, California, it appears that in the three years preceding the present the first rain fell

there on the 5th of November. From observations made in San Francisco the beginning and the ending of the rainy season since 1860 are shown as follows:

Years.	First rain.	Last rain.	RAINY SEASON.	
			Begins.	Ends.
1860–'61	October 4	May 22	December 6	April 5
1861–'62	November 1	May 12	November 10	April 14
1862–'63	November 5	May 19	December 18	April 23
1863–'64	September 19	May 17	November 11	April 4
1864–'65	November 15	May 19	November 23	March 4
1865–'66	September 24	June 8	November 13	March 31
1866–'67	November 3	May 17	November 16	April 12
1867–'68	September 14	June 23	November 19	April 13
1868–'69	October 1	May 19	December 17	March 29
Mean			November 28	April 10

The middle of January is considered the dividing point in the rainy season In January, 1862, the rain-fall amounted to 18 inches. In January of 1860, 1861, 1864, the rainfall was only a fraction above one inch in each month. It requires 7 to 10 inches in the coast counties, distributed very evenly, to insure a moderate crop.

STOCK SALES.

The Forest Hill herd of short-horns of Mr. J. H. Spears, Tallula, Illinois, was sold at auction on the 23d ultimo: Major Jones, one-year-old bull, sold to D. B. Canfield, of Philadelphia, Pennsylvania, for $700; Major Story, two years old, to Timothy Day, Winchester, Iowa, $555; Duke of Forest Hill, two years old, to same, $520. Two other one-year-old bulls sold for $505 and $310, respectively; and one, 18 months old, for $455. Three bull calves sold for $500, $425, and $95, respectively. Of the cows sold, a seven-year-old and a two-year-old sold for $1,000 each; a two-year-old at $795; a five-year-old, $760; a seven-year-old, $710; a six-year-old, $500; a four-year-old, $460; and seven others, from two to nine years old, at prices ranging from $150 to $370 per head. Seventy-two Berkshire pigs sold at an average of $27 per head. The average is lower from the fact that 23 of the pigs were small.

Mr. J. H. Davis, of Chesterfield farm, near Danville, Kentucky, recently sold about half of his herd of thorough-bred cattle. Ten bulls bringing an average of about $100 per head; the highest price realized being $163, the lowest, $66. Twenty-one cows and heifers averaged about $151 per head; highest, $260, lowest, $57. A number of Berkshire pigs, imported, brought prices ranging from $41 to $174 for the boars, three to six months old; and from $43 to $90 for sows, three to four months old. Pigs bred by Mr. Davis sold at from $26 to $60 per head.

IMMIGRATION.

A report has recently been made by the Statistical Bureau of the Treasury Department, giving the numbers and nationalities of immigrants coming into this country in fifty-one years, from which it appears that 7,448,940 persons have taken up a residence here during that period. An analysis of this statement shows that 51 per cent. (3,826,040) have come from the British Isles, and nearly 40 per cent. (2,946,971) from the continent of Europe, 4 per cent. from North America, and less than 2 per cent. from Asia.

The table of nationalities is arranged in the order of their numerical prominence.

Table showing the nationalities of the alien passengers arrived in the United States during the fifty-one years ended September 30, 1870.

Germany, not including Prussia	2,250,822	Japan	215
Great Britain, not specified	1,824,078	Greece	195
Ireland	1,406,030	India	178
England	501,316	Malta	127
British America	271,185	Cape of Good Hope	88
France	245,147	Jamaica	85
Countries, n. s	204,627	Hayti	81
Sweden and Norway	151,104	East India Islands	79
China	108,610	Cape de Verde	71
Prussia	100,983	Liberia	64
Scotland	82,403	Bermudas	61
Switzerland	61,269	Guiana	53
West Indies, n. s	45,558	Porto Rico	50
Holland	30,905	Brazil	45
Italy	23,387	Venezuela	40
Denmark	23,221	Peru	36
Spain	23,096	Sandwich Islands	35
Mexico	20,039	Arabia	33
Belgium	16,850	St. Helena	33
Wales	12,213	Chili	28
Austria	7,904	Asia, n. s	24
South America	7,407	Egypt	20
Azores	6,636	New Zealand	17
Portugal	4,416	Persia	14
Cuba	3,960	Iceland	11
Poland	3,955	Corsica	11
Russia	2,930	Barbary States	11
Sardinia	2,103	Buenos Ayres	7
Central America	1,667	Society Islands	7
Sicily	675	Abyssinia	5
Hungary	488	Islands of the Pacific, n. s	5
Africa	471	Syria	4
Madiera	313	Bolivia	3
Turkey	299	Miquelon	3
Canary Islands	290	New Granada	2
Australia	246	Paraguay	1
Total			7,447,745

MARKET PRICES OF FARM PRODUCTS FOR NOVEMBER, 1870.*

NEW YORK.

Flour—Superfine State	$5 25	to	$5 40
Western superfine	5 25	to	5 40
Extra western	5 65	to	6 25
Wheat—Spring, (new)	1 28	to	1 31
Winter red and amber western.	1 30	to	1 35
White Michigan	1 40	to	1 55
Corn—Western mixed	82½	to	84½
Yellow	90	to	—
Oats—Western	54½	to	55
Hay—Spring shipping	1 10	to	1 15
Pork—Mess	24 00	to	25 50
Prime	21 00	to	22 50
Beef—Plain mess	10 00	to	15 00
Extra mess	15 00	to	18 00
Lard	14	to	16¼
Butter—Western	20	to	32
State dairy	24	to	45
Cheese—Dairy	7	to	14
Factory	10	to	15¾
Cotton—Low middling, uplands	16⅝	to	—
Middling, uplands	17	to	—
Tobacco—Sound lugs, light grades	7½	to	8
Com. leaf, light grades	7¾	to	8½
Med. leaf, light grades	8¾	to	9⅞
Wool—Combing fleece	55	to	60
Extra pulled	37	to	42
Texas, com., unwashed	23	to	26

CHICAGO.

Flour—White winter ex., choice	7 00	to	7 50
Red winter extra	4 75	to	6 00
Spring ex., good to choice	5 00	to	5 50
Superfine	4 00	to	4 50
Wheat—No. 1 spring	1 00	to	1 07½
No. 2 spring	97	to	1 05½
No. 3 spring	91	to	1 01
Corn—No. 2	52	to	56
Rejected	48	to	53
Oats—No. 2	35½	to	35¾
Rejected	34	to	34½
Hay—Timothy pressed, (or track)	16 00	to	17 00
Prairie pressed, (or track)	11 00	to	12 00
Pork—Mess, (old)	24 00	to	24 50
Mess, (new)	22 00	to	22 50
Beef—Mess	11 25	to	11 50
Extra	13 25	to	13 50
Lard	14¾	to	—
Butter—Choice	28	to	30
Medium to fair	25	to	—
Wool—Unwashed, fine	25	to	26
Unwashed, coarse	26	to	27
Tub	42	to	48

CINCINNATI.

Flour—Family	5 75	to	6 00
Extra	5 40	to	5 60
Superfine	4 75	to	5 00
Wheat—No. 1 white	1 15	to	1 25
No. 2 white	—	to	—
No. 1 red	—	to	1 12
No. 2 red	1 10	to	—
Corn—White	—	to	70
No. 1	—	to	—
No. 2	—	to	60
Oats—No. 1	39	to	40
No. 2	37	to	39
Hay—Common	12 00	to	14 00
Loose pressed	17 00	to	18 00
Pork—City mess	24 50	to	25 00
Lard—Refined, in tierces	15½	to	15¾
Butter—Choice Ohio	33	to	35
Fair to good	25	to	33
Cheese—Choice factory	14½	to	15½
Western Reserve	13½	to	14
Cotton—Low middling	15	to	15¼
Middling	15½	to	15¾
Tobacco—Com. lugs, West Va	4 50	to	6 50
Com. lugs, Ohio	5 50	to	6 25
Tobacco—Com. lugs, Kentucky	$7 00	to	$9 50
Wool—Tub-washed	45	to	48
Fleece-washed, manufacturing.	40	to	43
Fleece-washed, combing	42	to	45
Unwashed, manufacturing	30	to	31
Unwashed, combing	32	to	35

ST. LOUIS.

Flour—Spring	4 10	to	4 35
Winter	3 60	to	4 85
Choice	5 25	to	6 50
Wheat—No. 1	1 28	to	1 32
No. 2	1 20	to	1 22
No. 3	1 06	to	1 14
Choice	1 40	to	1 45
Corn—Mixed	52	to	53
Yellow	60	to	62
White	65	to	68
Oats—Mixed	37½	to	38½
Prime, in burlaps	43	to	—
Hay—Timothy, prime to choice	17 00	to	20 00
Pork—Mess	25 25	to	25 50
Lard	16	to	17¾
Butter—Choice dairy	33	to	35
Medium	18	to	22
Cheese—Factory	15½	to	16⅝
New York	16	to	16½
Cotton—Middling	15	to	15½
Tobacco—Factory lugs	5 00	to	6 25
Planters' lugs	6 75	to	8 50
Wool—Tub-washed	40	to	48
Fleece-washed, (fine and light.)	35	to	40
Unwashed, combing	35	to	41
Pulled	30	to	32

NEW ORLEANS.

Flour—Superfine	5 00	to	5 12½
Extras, (accord'g to g'de)	5 70	to	8 25
Corn—Mixed	80	to	82
Yellow	90	to	—
White	83	to	90
Oats—Choice	53	to	—
Hay—Choice	29 00	to	—
Prime	27 00	to	28 00
Pork—Mess	26 75	to	27 00
Lard—In tierces	17	to	17½
In kegs	18¾	to	—
Butter—Choice western	33	to	35
Common	30	to	35
Cheese—Choice factory	15	to	15½
Western Reserve	13½	to	14
Cotton—Ordinary	12	to	13
Low middling	15¼	to	15⅜
Middling	15⅝	to	15⅞
Tobacco—Not quoted			
Wool—Quotations nominal for all grades.			

SAN FRANCISCO.

Flour—State	5 25	to	6 50
Oregon	5 25	to	6 50
Wheat—State	1 85	to	2 05
Oregon	2 00	to	2 05
Corn—White	1 25	to	1 30
Yellow	1 25	to	1 30
Oats	1 25	to	1 55
Hay—State	10 00	to	14 00
Pork—Mess	26 00	to	27 00
Prime	22 50	to	23 00
Beef—Mess	18 00	to	20 00
Lard—In barrels	13	to	14
Butter—State	40	to	65
Oregon	25	to	—
Overland	30	to	35
Cheese	12	to	18
Wool—Native	13	to	14
Californian	15	to	18½
Oregon	24	to	26

* Record made as near the first of the month as practicable.

THE SUGAR BEET IN ENGLAND.

Mr. Caird, in an account of the progress of the English beet-root sugar manufacture, states that the sugar made by Mr. Duncan, at Lavenham, in Suffolk, from beets grown by the farmers of that neighborhood, has brought the highest price in the market for sugar in crystals. Mr. Duncan is now converting into sugar about 400 tons of roots per week. This is the third year of the Lavenham factory and of the growth and manufacture of English beet-root sugar on a scale equal in extent to that of continental sugar factories. The analysis of the roots in the first two years showed the quality to be satisfactory, but chemical and mechanical means for extracting the sugar proved defective. There have been many other difficulties inseparable from a new undertaking, inexperienced hands not being the least, but perseverance and the exercise of great intelligence have triumphed, and the successful introduction of a new and profitable agricultural industry into England has been accomplished. Mr. Duncan has satisfied himself that the growth and manufacture of beet-root sugar can be carried on in Suffolk with quite as much success as in the north of France.

The total value of the sirup produced last year is £960. The expenditures, including cost of roots, government duty, and working expenses, do not exceed £660. So that there is a handsome balance for interest on capital and for profit, besides the value of the refuse pulp sold for cattle feed, and thus returned to the land. The roots are richer in sugar this year than usual, but, on the other hand, sugar is very cheap. The conversion of the roots into sugar has more than doubled their value, though purchased at a price more remunerative to the farmer than any other article he produces. The land is not impoverished, as nearly all the feeding properties of the beet are returned to it by being fed to cattle. The whole available surplus labor of an agricultural parish receives indoor employment in the sugar factory during three or four months of the slackest season, and at good wages. Capital is profitably employed, and trade of all kinds is benefited, while the general supply of sugar is augmented.

Mr. Campbell, of Buscot Park, Berkshire, is conducting a similar experiment on a large scale, so far as the growth of the beet is concerned, but with the intention of being able to convert the root either into sugar or spirit, as may at the time be most profitable. The weight and quality of the sugar beet grown on his estate this season cannot be surpassed. Thus, in Berkshire as in Suffolk, the soil and climate have proved equally suitable. There is no appreciable difference in the climate of the counties adjoining, and it is assumed that on all soils on which mangolds are now advantageously grown in the counties from the Wash to the English Channel, the sugar beet may be gradually introduced.

While Mr. Caird feels great confidence in the future profitable extension of this industry, he offers a word of warning. It did not pay Mr. Duncan the first or the second year. But the business is quite new in the country, and men are not yet educated to it. Enough has been done, however, to show that success may be anticipated by those who can bring to it a like command of capital, skill, and perseverance.

WIDE DRILLING AND TILLING WHEAT AND BARLEY.

In the autumn of 1868 the Cirencester (England) Chamber of Agriculture inaugurated a comparative trial between two or more methods of wheat culture. It was resolved to omit, in drilling, every alternate row, leaving a space of 18 inches between the rows; to omit two drills and leave two, leaving a space of 27 inches between double rows 9 inches apart; to omit two drills and leave two, forking the interspaces during the summer; and to attempt the cultivation of carrots or potatoes between the rows of wheat; and to try the effect of firmly pressing the land with the foot in winter and spring. In carrying out these experiments the wheat was in some cases sown with the drill in the usual manner, and the surplus obliterated by the hand-hoe soon after the blades appeared above the ground. In other cases the drill was set so as to deposit the seed at the required width. The object of these experiments was to show how far a free admission of air and light influences the growth of the wheat plant; how far interculture is beneficial or the reverse, and the effect of thin seeding. The results were as follows:

Plot with alternate rows obliterated and spaces forked produced at the rate of 29.6 bushels per acre; alternate rows obliterated and the remaining rows singled into tufts or bunches, 22.8 bushels; ordinary wheat for comparison, 30.8 bushels; three rows left and three hoed out, spaces forked, 25.2 bushels; alternate rows obliterated, spaces not forked, 28.4 bushels; alternate rows obliterated, remaining rows tufted, 24.4 bushels; three rows left and three obliterated, not forked, 26.8 bushels; alternate rows obliterated, spaces not forked, 28.4 bushels; three rows left and three hoed out, spaces forked, 20.4 bushels; ordinary wheat 29.2 bushels; three rows left and three hoed out, spaces forked, 23.2 bushels; alternate rows obliterated, spaces forked, 26 bushels.

In no case was the crop so good as on the plots cultivated in the usual way. Plots in which the alternate rows were obliterated were so nearly equal to those of ordinary wheat, that, since half the seed might have been saved by sowing with a wide drill, the advantage is pretty equal in both methods. The forked wheat was generally inferior to the corresponding unforked. Since 25 and 26 bushels per acre were obtained from half the land under crop in cases of plots 4 and 7, the question whether the interspaces would bear as large a crop of wheat the succeeding year is worthy of attention.

Experiments made upon barley at the Royal Agricultural College Farm, in 1868, during the same season, point to a clear advantage from wide drilling and interculture. Average product of three ordinary plots 31.6 bushels to the acre; average results of two plots, alternate rows obliterated, 40.7 bushels; average results of two plots, alternate rows obliterated, spaces forked, 42. 7 bushels.

In 1869 the results of Earl Rathurst's experiments were as follows: Plot with two rows of wheat obliterated and two left, carrots sown between, forked, produced per acre, 1,700 pounds of grain, 2,560 pounds of straw, 240 pounds of cavings, and 360 pounds of chaff. Plot with two rows obliterated and two left, forked April 9 and June 7, produced per acre, 1,820 pounds of grain, 2,720 pounds of straw, 230 pounds of cavings, and 320 pounds of chaff. Plot with two rows obliterated and two left, 1,770 pounds of grain, 2,810 pounds of straw, 230 pounds of cavings, and 300 pounds chaff. Plot with ordinary treatment, 1,910 pounds of grain, 2,645 pounds of straw, 180 pounds of cavings, and 300 pounds chaff.

At the College Farm in 1869, the average of three unmanured and

untouched plots of wheat was 25 bushels to the acre. The plots where two rows had been alternately removed and left without interculture, except hoeing, gave respectively 60 and 80 pounds less grain per acre than unmanured and untouched plots; while two plots similarly treated, with the addition of forking between the rows, showed a decrease of 175 pounds and 165 pounds respectively, when compared with ordinary wheat. The potatoes planted between the rows of wide-drilled wheat were a complete failure.

The results on the farm of Mr. Smith, of Bibury, show that a plot with two drills nine inches apart, alternated with 27-inch spaces, potatoes between, produced at the rate of 3,200 pounds of wheat, and 4,260 pounds of straw per acre; plot with two drills omitted and two left, spaces forked twice, 3,020 pounds of grain, and 4,140 pounds of straw; plot with two drills omitted and two left, land pressed, 3,080 pounds of grain, and 4,340 pounds of straw; two drills taken and two left, land pressed, 3,280 pounds of grain, and 4,380 pounds of straw; untouched plot, 2,760 pounds of grain, and 3,500 pounds of straw. These results were so satisfactory to Mr. Smith that he has sown a larger area upon the same principle. Here the seed was at once drilled the required width, thus saving one bushel of seed per acre.

In experiments of Mr. W. J. Edmonds the plots, (one-twentieth of an acre,) with two rows removed and two left, averaged 58½ pounds of grain; two rows removed and two left, spaces forked, 63 pounds; two rows removed and two left, spaces planted with potatoes, 64½ pounds; plots firmly pressed with foot, 70½ pounds; ordinary drilling, 100¾ pounds. These results are decidedly unfavorable to wide drilling and thin seeding, little more than half the yield being obtained from the wide-drilled plots.

Such are the results of wide drilling and interculture in the experiments named. In one case there was a remarkable increase of wheat and straw, in connection with a saving of one bushel of seed to the acre. A second case gave an increased amount of straw per acre, and was thought, up to harvest, to promise a greater yield of grain, but strict weighing revealed a deficiency, probably due to mildew. A third series gave a slightly diminished yield upon land which had borne a barley crop the preceding year, and was consequently in low condition. A fourth gave an unequivocal answer in favor of continuing the usual system. All the experiments agree in condemning deep interculture between wide-drilled wheat. Many corroborative answers, extending over three seasons, go far to prove that, in the district where these trials were made, deep interculture in the case of wheat is unnecessary.

With reference to barley the results obtained were certainly encouraging, and the system of wide-drilling will again be tested. In addition to the increase in grain in the case of barley and sowing of seed, the facility offered for working both hand and horse hoes must be looked upon as an additional advantage.

HOP-GROWING IN ENGLAND.

About 65,000 acres of land are cultivated in hops in England, and the area planted is annually increasing. Kent County is the most extensively engaged in the culture, the acreage this season reaching 33,000, the early grounds averaging 14 to 16 hundreds weight per acre. Sussex cultivates 14,500 acres, and produced this year 18 to 22 hundred

weight per acre, but the crop was materially damaged by the gales of September, and many growths were imperfectly cured. Berks and Hants cultivated 3,300 acres, and the yield was 14 to 18 hundred weight per acre. Hertfordshire 6,000 and Worcestershire 3,800 acres; product from 15 to 18 hundred weight per acre. Surrey produces a choice quality of hops, celebrated for their bright color and superior aroma, and properties essential for brewing pale and bitter ale. In Farnham 1,100 acres are cultivated, and the average product this season was 14 to 16 hundred weight per acre. The other counties grow about 4,900 acres. The free importation of foreign hops into England and the large continental growths this season have decreased the value of domestic hops.

ITEMS FROM VARIOUS SOURCES.

PROFITABLE CULTURE.—In March 1869, Mr. C. A. Hutchinson, of Jacksonville, Florida, planted a plot, 50 feet square, with orange seed. In February next the plants were 12 to 18 inches high, when $200 worth were sold at the rate of $20 per hundred. The remainder were transplanted, and are now 2½ to 3 feet high, and occupy a space of 50 by 100 feet, and number about 8,000 plants. They are worth an average of $30 per hundred in the market, making the product of the lot, within two years, $2,600. The expense of seed and cultivation is estimated at about $60.

BANANA CULTURE.—The cultivation of the banana is engaging considerable attention in the neighborhood of Palatka, Florida, and the river counties. Three years ago a gentlemen in Orange County set out nine plants, and is now reaping the fruits of a three-acre field, and realizes $125 per month from the fruit and the young plants that are continually suckering around the roots of the old plants. The banana fruits in all seasons, the year round, and is fertilized by the shedding of its huge leaves.

CRANBERRIES.—It is stated that quite an impetus has been given to the sale of marsh lands in Washington Territory recently, by the advent of a New Jersey cranberry grower in quest of these valuable lands. The Oregon Statesman says there is a large marsh near Gray's Harbor, in that State, which is already covered with cranberry bushes growing wild, and yielding considerable fruit, which is picked and sold by the Indians. This marsh has been purchased of the Government by several gentlemen of Salem, New Jersey.

CALIFORNIA WINES.—It is estimated that 700,000 to 800,000 gallons of red and white wine have been made in Anaheim, Los Angeles County, California, this season, and of a better quality than the product of any preceding year. The amount is 250,000 gallons in excess of the yield of any previous season. It is claimed that, owing to the fine weather and the extra condition of the grapes, this wine is already so thoroughly fermented that it will be in a marketable condition in sixty days. Preparations are being made for the immediate setting out of 300 to 400 additional acres of vines. From 300 to 400 boxes of Malaga grape raisins have been made this year, as an experiment, and are said to be of unusual size and flavor, and superior to any in the market. Don Mateo Keller, one of the largest wine-makers of Los Angeles, has expressed 100,000 gallons of the pure juice this season.

The San Francisco Commercial Herald states that the total shipments

of domestic wines from that port to New York from the beginning of 1868 to about the 1st of July of the current year, were 848,637 gallons of all grades. Of this quantity the United Anaheim Wine-Growers' Association shipped 237,600 gallons. G. Groezinger's shipments averaged $40,000 per annum, and the proportions were two-thirds white or hock, and one-third port, angelica, sherry, muscatel, &c. The usual prices charged were, for white or hock, 50 to 70 cents per gallon; port, $1 25 to $1 50; angelica, $1 to $1 25; sweet muscatel, $1 to $1 50; sherry, $1 to $1 50. I. Landsberger & Co. shipped 2,500 cases of champagne, 4,000 cases and 40,000 gallons assorted, besides 250 cases of wine bitters. Kohler & Frohling shipped about 120,000 gallons. The Lake Vineyard Wine Company consigned 45,577 gallons of port, 24,826 gallons of angelica, 40,353 gallons of white, 31,147 gallons of claret, 4,071 gallons of sherry, 8,758 gallons of grape brandy, &c. There were several smaller shippers whose consignments are included in the grand total above given.

California Cotton.—A scientific expert in cotton states that the cotton grown from Alabama seed in Merced County, California, this year, compares favorably with Brazilian and Egyptian cotton, and is superior to the best southern upland for spinning purposes. He asserts that the effects of the dry and equable climate of California is an improvement in the staple yielded from the same seed as planted upon southern uplands. There are large sections of the State well adapted to this culture.

Chinese Immigration.—According to data on record there were but 11 arrivals of Chinamen in this country between 1820 and 1840, and only 35 in the following decade. From 1851 to 1860 there were 41,397, and from 1861 to 1868 there were 41,214 arrivals. In 1869 there were 14,902, and for the first six months of the current year, 7,349. The aggregate thus far, 105,744. Allowing for deaths and for those returned to China, it would appear that there are now considerably less that 100,000 Chinamen in this country. The rate of increase for the last four years has been as follows: in 1867 the number was 3,519; in 1868, 6,707; in 1869, 12,874; and in 1870, 15,740. The total arrivals of females to June 30, 1870, were 2,144.

A Suggestive Experiment.—One of the largest wheat-growers in California has avoided the expense of commission, tolls, storage, &c., by shipping his wheat direct to Liverpool. He chartered a ship which was hauled in at the end of the Central Pacific Railroad wharf at Oakland, and in a few hours 1,200 tons of grain were brought alongside and stowed, and the vessel returned to the stream ready for her voyage, without having incurred any wharfage charges.

The Great Wyoming Coal Belt.—We continue to receive favorable accounts of the immense undeveloped coal-fields of Wyoming Territory, extending along the line of the Pacific Railroad a distance of about three hundred miles. One vein has been opened and worked during the past season, and the product is said to compare favorably with that of any western mine now in operation. It is claimed that it is a better article than Lehigh coal for making steam, for domestic use, for locomotive and for smelting purposes, and for gas manufacture. In the hills north and east of these vast coal deposits are layers of clay, iron, and stone, yielding about 30 per cent. of metallic iron. The ore is remarkable for the large amount of lime it contains, which obviates the necessity of using other flux, and leaves the ore in an unusually porous and fusible condition by means of the expulsion of carbonic acid gas in such great quantities. A few miles further east, and on the Weber

River, a few miles west, deposits of magnetic ore have been found. The existence of unlimited quantities of coal and iron in such close proximity promises to make this region the seat of a great iron manufacturing industry in future years.

ANALYSIS OF WHEAT.—O. S. Hubbell, M. D., a distinguished pharmaceutist of Philadelphia, furnishes the following analysis of the flour and bran which he receives from the mill to which he sends his wheat for grinding. From every 100 pounds of wheat about 76 pounds of flour and 20 pounds of bran. The flour contains of tissue-making elements, (gluten, albumen, &c.,) 1.65; of phosphates and other salines, 0.70; total, 2.35 per cent. The bran contains, of tissue-making elements, 3.10; salines, phosphates, &c., 7.05; total, 10.15 per cent. That is, for purposes of nutrition, the bran is more than fourfold richer than the flour, or (being one-fourth the weight of the flour) it has as much value as the flour itself. Wheaten flour of the miller consists chiefly of wheaten starch, while the flesh-forming element of the grain, with the blood and bone-producing constituents are chiefly rejected in the bran, and are seldom used for human food, through traditional ignorance and prejudice; while wheat flour is doubly nutritious, and can be eaten only in diminished quantity, or surfeit will be the result.

TOBACCO IN OHIO.—It is estimated that the tobacco crop of the Miami Valley this year will reach 12,000,000 pounds. The quality of the product is thought to nearly equal that of the Connecticut gold-leaf. A large portion has been sold at 17 cents per pound, at which rate the crop would realize $2,040,000. The average value of the crop per acre is over $200. Nearly three-fourths of the whole product was grown in Montgomery County.

BEET SUGAR IN FRANCE.—Notwithstanding the scourge of war the principal beet sugar districts of France have manufactured 38 per cent. more sugar this year than in the seasons of 1868–'69. The season has been admirable for the growth of the beet. The circular of Arnold, Baruchson & Co., Liverpool, England, reports the product in the various departments of France as follows: Aisne, 60,871 tons; Nord, 88,316 tons; Oise, 20,470 tons; Pas de Calais, 42,946 tons; Somme, 32,930 tons; other departments, 28,699 tons. Total, 274,232 tons, against 198,718 tons the preceding year.

THE CUBAN SUGAR CROP.—Alfonso & Blanchard's circular (Matanzas, November 4) states that, with regard to the injury done to the sugar-cane for the next crop by the great hurricane of October, there is much difference of opinion among planters, but that the majority agree on an average of 25 to 30 per cent. Much of the cane, from being whirled, has been broken at the root, and in some districts completely inundated, which may produce total rottenness. The sugar estates have suffered more or less from destruction of buildings, machinery, and implements, and the aggregate loss is heavy.

INCREASE OF FARMS IN CALIFORNIA.—The number of acres of land assessed in Fresno County, California, for the present year, is 1,344,079. In 1860 there were in the county 3,770 acres of improved land in farms, and 19,431 acres of unimproved land in farms, the total value of which was $118,140.

TREATMENT OF WOOD IN PAPER MANUFACTURE.—The wood, previously reduced to shavings or sawdust, is placed for a time (the duration of which depends upon the nature and state of division of the wood) into water, being left there to rot, as is done with flax. By this treatment a great many substances are removed from the wood, which is thereby afterward more readily pulped. The rotting in water has the

effect of disintegrating and partly decomposing the nitrogenous and incrusting matter of the wood, which is also afterward more readily bleached, not becoming yellow by the use of chlorine, as is the case when these matters have been left in the wood. The rotted wood is thoroughly washed with boiling water and steamed, previous to any other treatment, and next treated with an alkali.

Bat Guano.—The excrements of bats from Egypt have recently become an article of trade as a sort of guano for manurial purposes. An analysis of the composition shows in 100 parts, urea, 77.80; uric acid, 1.25; kreatine, 2.55; phosphate of soda, 13.45; water driven off at 100° centigrade, 3.66; substances insoluble in water, 0.575—total 99.285.

Cattle Disease in New York.—The farmers of Dutchess County, New York, are excited over the appearance among their cattle of a peculiar disease. It appears that thirteen steers and a pair of oxen were brought after sunset into Pawling, and kept in one of the cattle yards over night. The next day the oxen were sold to a neighboring farmer. About four days after being taken to their new home the oxen were taken suddenly sick, their tongues commenced to swell, water ran from their mouths, their hoofs began to rot, and their appetite vanished. Though not considered in a critical condition, they were apparently failing daily. Soon after it was noticed that their ailments had been imparted to other cattle on the farm, and now thirty-one head are afflicted in the same manner, most of them milch cows. Cattle on the neighboring farms are also down with the disease, and to all appearances the malady is spreading fast, and threatens to produce disastrous results.

The Cattle Plague in Germany.—Information has been received at the veterinary department of the privy council, England, that the cattle plague is raging in many parts of Germany and France, and that, in consequence of the war on the continent, all efforts to check it in the various provinces of Germany appear to have failed, while in France it is reported to have accompanied the German army from the vicinity of Metz to Paris. Orders have been issued by the lords of the council adding France to the list of suspected countries, and subjecting sheep and goats from Germany and France to the same restrictions as are imposed upon cattle coming from those countries; and further requiring that all such cattle, sheep, and goats coming to London shall be slaughtered at the place of landing, instead of being brought to the metropolitan market. The governments of Belgium and the Netherlands are strictly guarding their frontiers and seaboard against the introduction of animals from Germany and France.

METEOROLOGY.

OCTOBER, 1870.

[COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS MADE BY THE OBSERVERS OF THE SMITHSONIAN INSTITUTION.]

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and the amount of rain-fall, (in inches and tenths,) for October, 1870, as reported by the observers and at the stations named. Observations daily at 7 a. m. and 2 and 9 p. m.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MAINE.				°		°	°	*In.*
Houlton	Aroostook	C. H. Fernald	3	80	27	17	46.9	6.60
Orono	Penobscot	M. C. Fernald	2	69	27	21	47.3	5.53
Mt. Desert	Hancock	J. D. Parker						4.40
Williamsburg	Piscataquis	Edw. Pitman	2	68	27	20	45.9	6.90
West Waterville	Kennebec	B. F. Wilbur	25	78	27	27	50.3	5.36
Gardiner	do	R. H. Gardiner	2	69	27	26	49.7	6.39
Lisbon	Androscoggin	Asa P. Moore	2	76	27	20	49.4	5.55
Norway	Oxford	H. D. Smith	2	74	27	22	48.5	3.25
Cornish	York	Silas West	2	72	27	22	49.1	3.85
Cornishville	do	G. W. Guptill	17	73	27	24	50.9	7.20
Averages							48.7	5.50
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	2, 16	70	27	20	45.5	4.47
Whitefield	do	L. D. Kidder	16	71	27	16	46.2	3.70
Tamworth	Carroll	A. Brewster	16, 25	71	27	10	47.5	5.59
Salisbury	Merrimack	E. D. Conch	16	75	27	19	49.8	
Goffstown Center	do	Alfred Colby	10	79	27	24	52.5	3.89
Averages							48.3	4.41
VERMONT.								
Lunenburg	Essex	H. A. Cutting	12	79	27	17	46.7	3.00
Craftsbury	Orleans	E. P. Wild	12	67	19	27	44.4	5.67
Newport	do	J. M. Currier	2, 16	70	27	22	47.2	5.50
Randolph	Orange	C. S. Paine	12, 16	71	27	20	48.7	4.68
Woodstock	Windsor	H. Doton & L. H. Miller	2, 16	68	27	18	45.4	3.80
Near St. Albans	Franklin	A. H. J. Gilmour	16	70	27	24	48.0	5.50
West Charlotte	Chittenden	Minerva E. Wing	12	74	27	28	52.1	5.84
Panton	Addison	D. C. and M. E. Barto	2	69	27	25	44.1	5.25
Castleton	Rutland	Rev. R. G. Williams	16	72	27	24	49.6	3.34
Averages							47.9	4.73
MASSACHUSETTS.								
Lawrence	Essex	J. Fallon						5.35
Kingston	Plymouth	G. S. Newcomb	1	74	30	30	54.3	8.25
Milton	Norfolk	Rev. A. K. Teele	16	79	30	30	54.6	3.94
Cambridge	Middlesex	Mrs. S. H. Perry	1	76	27	29	55.3	
North Billerica	do	Rev. E. & W. W. Nason	16	74	24	25	52.8	
West Newton	do	J. H. Bixby	1	82	30	29	56.0	6.46
New Bedford	Bristol	Samuel Rodman	1	77	27	29	54.0	6.42
Worcester	Worcester	D. T. Morrill	1	72	27	28	52.0	5.89
Lunenburg	do	G. A. Cunningham	1	74	27	26	52.8	6.95
Amherst	Hampshire	Prof. E. S. Snell	2	71	27	26	52.1	4.49
Richmond	Berkshire	William Bacon	15, 16	70	27	26	52.4	6.55
Williamstown	do	Prof. Albert Hopkins	2, 16, 25	70	27	24	49.6	4.30
Averages							53.3	5.86

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
RHODE ISLAND.				°		°	°	*In.*
Newport	Newport	W. A. Barber	1	79	27	29	56.6	5.88
CONNECTICUT.								
Columbia	Tolland	W. H. Yeomans	1	80	27	28	55.1	4.15
Middletown	Middlesex	Prof. John Johnston	1, 5	76	27	24	53.8	4.10
Southington	Hartford	Luman Andrews	1	73	27	30	53.4	4.32
Colebrook	Litchfield	Charlotte Rockwell	16	72	27	24	50.5	6.94
Brookfield	Fairfield	Rev. S. W. Roe	4	79	27	32	55.6	8.20
Averages							53.7	5.54
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh'rs	1	75	30	30	51.5	3.76
South Hartford	Washington	G. M. Ingalsbe	16	76	27	25	53.8	2.95
Caldwell	Warren	A. M. Strong	2, 16	72	27	19	49.8	8.45
Garrison's	Putnam	T. B. Arden	4	71	27	28	52.3	5.33
Throg's Neck	West Chester	Miss E. Morris	1	80	27	37	58.7	.....
White Plains	West Chester	Prof. O. R. Willis	1	74	30	31	56.0	.....
Cooper Union	New York	Prof. O. W. Morris	1	77	30	36	58.4	5.72
Brooklyn	Kings	I. P. Mailler	1	82	27	36	58.5	5.50
Minaville	Montgomery	J. W. Bussing	2, 25	72	30	27	52.8	1.95
Cooperstown	Otsego	G. P. Keese	16, 17	72	30	23	49.9	3.80
Gouverneur	St. Lawrence	C. H. Russell	2	71	30	22	48.3	3.64
North Hammond	St. Lawrence	C. A. Wooster	2	78	27	32	54.9	6.72
Houseville	Lewis	W. D. Yale	2, 16	72	30	26	49.2	4.99
Utica	Oneida	J. G. Williams	16	73	30	27	52.1	4.36
South Trenton	Oneida	Storrs Barrows	17	78	30	24	51.9	8.00
Cazenovia	Madison	Prof. William Soule	16	71	30	27	49.7	.....
Depauville	Jefferson	Henry Haas	2	75	30	28	50.1	3.98
Oswego	Oswego	William S. Malcolm	16	69	30	32	51.6	4.98
Palermo	Oswego	E. B. Bartlett	2	72	30	27	49.9	2.20
North Volney	Oswego	J. M. Patrick	16	77	30	29	53.8	.....
Waterburg	Tompkins	David Trowbridge	12	72	30	20	48.3	.....
Nichols	Tioga	Robert Howell	16	75	30	23	50.4	.....
Newark Valley	Tioga	Rev. Samuel Johnson	16	74	30	24	50.4	3.80
Himrod's	Yates	G. D. Baker	16	71	30	28	44.7	1.06
Little Genesee	Allegany	Daniel Edwards	16	74	30	25	49.2	2.13
Suspension Bridge	Niagara	W. Martin Jones	16	74	30	36	52.2	3.25
Lockport	Niagara	B. W. Clark	24	78	19, 30	34	52.1	2.39
Buffalo	Erie	William Ives	16	75	19	31	52.4	4.54
Averages							51.9	4.25
NEW JERSEY.								
Paterson	Passaic	William Brooks	1	77	27, 30	32	54.9	4.84
Newark	Essex	W. A. Whitehead	1	76	27	32	55.4	4.75
South Orange	Essex	W. J. Chandler, M. D	1	78	27	30	55.2	5.64
Trenton	Mercer	E. R. Cook	1	80	27	37	59.8	5.23
Rio Grande	Cape May	Mrs. J. R. Palmer	4	79	23	40	57.8	3.12
Moorestown	Burlington	T. J. Beans	1	76	29	34	56.0	4.82
New Germantown	Hunterdon	A. B. Noll	1, 12	77	27	33	54.8	4.86
Readington	Hunterdon	John Fleming	15	76	30	30	55.5	.....
Haddonfield	Camden	John Boadle	1	77	30	34	55.5	3.78
Greenwich	Cumberland	Miss R. C. Sheppard	1	78	19	38	57.4	1.92
Vineland	Cumberland	John Ingram, M. D	1	81	19, 30	36	57.3	3.05
Averages							56.3	4.21
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	9, 16	73	30	25	49.3	2.40
Hamlinton	Wayne	J. D. Stocker	16	75	27	29	51.3	3.60
Fallsington	Bucks	Ebenezer Hance	1	79	27, 30	37	57.0	4.50
Philadelphia	Philadelphia	J. A. Kirkpatrick	1	79	27	39	59.3	4.11
Germantown	Philadelphia	Thomas Meehan	12	79	19	38	55.7	.....
Germantown	Philadelphia	Ernest Turner	1	78	19	39	55.4	2.25
Horsham	Montgomery	Miss Anna Spencer	1	76	30	36	55.4	6.41
Plymouth Meeting	Montgomery	M. H. Corson	1	77	30	35	55.8	6.02
Egypt	Lehigh	E. Kohler	1	78	30	29	54.6	.....
North Abington	Luzerne	R. Sisson	12	74	30	22	50.2	4.09
Reading	Berks	J. H. Raser	1	76	30	36	57.2	3.00

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
PENN'A—Cont'd.				°		°	°	*In.*
West Chester	Chester	George Martin, M. D.	1	78	19, 30	37	55.5	4.48
Parkersville	Chester	F. Darlington, M. D.	1	77	24	41	56.6	4.78
Ephrata	Lancaster	W. H. Spera	1	78	27, 30	36	54.5	2.82
Carlisle	Cumberland	William H. Cook, M. D	1, 16	72	19, 23	38	54.6	2.90
Fountain Dale	Adams	S. C. Walker	1, 25	72	21	40	56.2	2.02
Tioga	Tioga	E. T. Bentley	2	72	19, 30	24	51.0	3.20
Grampian Hills	Clearfield	Elisha Fenton	24	71	19	26	47.5	4.59
Johnstown	Cambria	David Peelor	17	76	19	33	53.3	4.21
Franklin	Venango	M. A. Tolman	16, 24	74	19	31	51.6	4.91
Pittsburg	Allegheny	George Albree	16, 27	74	23, 31	37	55.9	3.20
Connellsville	Fayette	John Taylor	10	78	19	32	55.3	.....
Brownsville	do	J. A. Hubbs, M. D	24	80	14, 22, 24	40	58.6	.....
New Castle	Lawrence	E. M. McConnell	16, 17, 25	69	19	27	54.0	2.40
Beaver	Beaver	Rev. R. T. Taylor	27	72	19, 23	35	53.2	2.20
Canonsburg	Washington	Rev. Wm. Smith, D. D.	16, 24	81	19	30	54.0	3.06
Averages							54.5	3.69
DELAWARE.								
Milford	Kent	Mrs. Wm. R. Phillips	1	79	19	39	55.9	2.70
Dover	do	J. H. Bateman	1	81	19, 30	41	58.7	1.10
Averages							57.3	1.90
MARYLAND.								
Woodlawn	Cecil	J. O. McCormick	1	78	19, 30	36	56.7	4.56
Fallston	Harford	George G. Curtiss	1	82	19	43	.....	4.20
Annapolis	A. Arundel	W. R. Goodman	1	80	21	41	60.6	3.50
Mt. St. Mary's	Frederick	C. H. Jourdan	1	75	19	39	55.2	2.42
Averages							57.5	3.67
DIST. COLUMBIA.								
Washington	Washington	Smithsonian Instit'n	1	79	19	44	59.5	3.90
VIRGINIA.								
Johnsontown	Northampton	C. R. Moore	1	80	21	42	61.9	2.55
Hampton	Elizab'th City	J. M. Sherman	1	82	10, 14, 16, 19	45	62.3	2.25
Surry C. H.	Surry	B. W. Jones	1	90	15	39	63.1	2.75
Comorn	King George	E. T. Tayloe	1	82	21	47	62.7	3.08
Vienna	Fairfax	H. C. Williams	10	71	19	43	57.0	5.00
Piedmont Station	Fauquier	W. A. Martin	25	78	19	34	56.0	2.10
Piedmont	do	F. Williams	1	78	21	38	57.5	2.00
Staunton	Augusta	J. C. Covell	28	72	21	39	55.0	2.13
Lexington	Rockbridge	J. L. Campbell	28	78	21, 22	34	54.8	2.87
Lynchburg	Bedford	C. I. Meriwether	28	76	21	44	60.5	3.50
Wytheville	Wythe	Rev. J. A. Brown	27	71	9, 22, 23	34	54.3	2.80
Averages							58.6	2.82
WEST VIRGINIA.								
Weston	Lewis	B. Owen	27	75	19, 23	30	53.0	.....
NORTH CAROLINA.								
Goldsborough	Wayne	E. W. Adams, A. M.	2	96	22	40	67.9	4.00
Warrenton	Warren	H. A. Foote	1	76	21	48	62.7	2.10
Oxford	Granville	W. R. Hicks, M. D	3, 25, 28	78	23	43	60.9	1.20
Albemarle	Stanley	F. J. Kron	28	85	14, 17, 22	38	60.9	2.80
Statesville	Iredell	T. A. Allison	26, 27, 29	74	21	32	55.2	3.13
Asheville	Buncombe	E. J. Aston	27	74	21	33	55.3	2.00
Do	do	J. T. E. Hardy, M. D.	29	70	21	32	55.0	.....
Averages							59.7	2.54

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
SOUTH CAROLINA.				°		°	°	*In.*
Aiken	Barnwell	J. H. Cornish	28, 29	80	20	49	65.8	4.40
Bluffton	Beaufort	J. St. J. Guerard, M. D.	12	86	21, 22	56	71.6	8.40
Averages							68.7	6.40
GEORGIA.								
Berne	Camden	H. L. Hillyer	3	79	21	47	66.1	5.05
St. Mary's	....do	Ebenezer Barker	3, 31	81	21	50	70.2	.....
Penfield	Greene	J. P. Sanford	29	82	21	41	64.7	2.77
Atlanta	Fulton	C. Deckner	23	76	13	46	61.5	0.10
Averages							65.6	2.64
ALABAMA.								
Rockville	Jefferson	Miss E. B. Shields	27, 28 / 29, 30	78	21	40	64.2	1,37
Carlowville	Dallas	H. L. Alison	19	84	21	47	66.9	0.57
Greene Springs	Hale	H. Tutwiler, LL. D	19	82	21	41	64.8	0.30
Coatopa	Sumter	S. K. Jennings, M. D	19	86	14	42	65.0	1.80
Averages							65.2	1.01
FLORIDA.								
Port Orange	Volusia	S. N. Chamberlin	1, 2	84	21	55	74.2	13.16
St. Augustine	St. John's	George W. Atwood	5	88	21	54	75.6	.....
Jacksonville	Duval	A. S. Baldwin, M. D	3	87	21	52	73.0	7.10
Pilatka	Putnam	G. D. Robinson	5, 12	90	21	52	74.7	4.32
Orange Grove	Manatee	W. J. Clark	11	88	21	57	75.8	9.75
Newport	Wakulla	Charles Beecher	11	83	14, 22	48	68.0	2.45
Averages							73.6	7.36
TEXAS.								
Clarksville	Red River	John Anderson	29	89	20	50	69.7	.....
Gilmer	Upshur	J. M. Glasco	2, 4	87	20	43	68.2	3.71
Palestine	Anderson	N. S. Brooks	3	89	20	48	71.5	6.70
Oakland	Colorado	F. Simpson	3, 5, 11, 27	88	19	54	72.4	7.64
Blue Branch	Burleson	F. S. Wade	4	84	20	44	68.7	10.00
Bluff	Fayette	J. Fletsam	15	88	20	48	72.1	6.50
Clinton	DeWitt	A. C. White	2, 4	88	20	47	70.8	4.40
Austin	Travis	J. Van Nostrand	5, 27	86	20	47	68.2	12.63
San Antonio	Bexar	Fred. Pettersen, M. D	5	90	20	43	70.8	5.60
Averages							70.3	7.15
LOUISIANA.								
New Orleans	New Orleans	R. W. Foster	16	84	21, 22	49	68.0	.....
Shreveport	Bossier	J. H. Carter	5	85	14, 20	44	66.1	.....
MISSISSIPPI.								
Columbus	Lowndes	James S. Lull	27, 28	81	21	40	64.4	1.01
Philadelphia	Neshoba	L. A. Bowden	28, 29	78	20, 21	45	64.5	2.10
Grenada	Grenada	J. S. Payne	3, 18, 23	80	13, 21	38	62.9	0.95
Near Brookhaven	Lawrence	Mrs. W. E. A. Keenan	23	89	20	36	65.3	1.40
Averages							64.3	1.37
ARKANSAS.								
Helena	Phillips	O. F. Russell	29	87	21, 31	42	63.7	.....
Mineral Springs	Hempstead	Harmon Bishop	23	86	21	40	62.2	2.13
Fayetteville	Washington	Charles L. McClung	27, 28	82	20	37	61.8	3.74
Averages							62.6	2.94

Table showing the highest and lowest range of the thermometer, &c.—Continued.

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TENNESSEE.				°		°	°	*In.*
Elizabethton	Carter	C. H. Lewis	27	78	21	32	57.8	3.17
Lookout Mountain	Hamilton	Rev. C. F. P. Bancroft	29	81	20	42	61.9	.....
Clearmont	Warren	T. P. Wright	27	79	21	37	59.1	1.89
Austin	Wilson	P. B. Calhoun	1, 3, 6, 7, 28	80	14	36	60.6	3.64
Clarksville	Montgomery	Prof. W. M. and Miss Stuart.	27	82	22	42	60.2	2.15
Trenton	Gibson	W. T. Grigsby	27	90	13, 21	41	63.5	5.80
La Grange	Fayette	W. E. Franklin, M. D.	26, 27, 28	84	20, 21	44	64.4	0.70
Averages							61.1	2.89
KENTUCKY.								
Pine Grove	Clark	Dr. S. D. Martin	27	76	21,22,31	38	56.8	2.24
Shelby City	Boyle	Howard Shriver	1	76	14, 21	41	58.0	2.48
Near Louisville	Jefferson	Mrs. L. Young	27	81	22	37	59.8	3.89
Averages							58.2	2.87
OHIO.								
Salem	Columbiana	Rev. J. E. Pollock	27	76	19, 31	33	52.5	2.35
Steubenville	Jefferson	Joseph B. Doyle	16,17,27	70	19	36	55.7	1.90
Painesville	Lake	E. J. Ferriss	27	72	19,21,31	40	53.9	9.13
Cleveland	Cayuhoga	Mr. & Mrs. G. A. Hyde	16, 27	73	18, 22	37	53.8	5.36
Wooster	Wayne	Martin Winger	16, 24	80	19	30	54.6	.....
Adams' Mills	Muskingum	Charles A. Stillwell	27	77	14	32	55.3	2.37
Pennsville	Morgan	T. J. Bingman	27, 28	74	22	37	58.8	1.20
Oberlin	Lorain	L. Herrick	16	76	18, 31	32	53.1	3.35
Kelley's Island	Erie	G. C. Huntington	16	73	18	41	57.8	3.13
Sandusky	....do	Thomas Neill	16	75	19	39	55.7	4.64
Carson	Huron	Mrs. M. M. Marsh	16	72	31	38	55.6	2.90
North Fairfield	....do	O. Burras	24	76	18, 31	38	55.6	3.45
Gambier	Knox	F. K. Dunn	27	70	23	34	52.7	2.70
Westerville	Franklin	Prof. John Haywood	27	76	31	33	54.8	2.77
Williamsport	Pickaway	John R. Wilkinson	10, 28	84	23	30	57.7	3.75
North Bass Island	Ottawa	Geo. R. Morton, M. D.	16	76	31	41	57.3	3.59
Marion	Marion	H. A. True, M. D.	16	74	29	36	53.1	2.84
Hillsboro	Highland	J. McD. Mathews	27	74	31	39	55.2	2.32
Bowling Green	Wood	John Clarke	16	82	31	36	56.5	4.85
Kenton	Hardin	C. H. Smith, M. D	3	70	30, 31	37	51.8	4.70
Bellefontaine	Logan	William Barringer	16	74	31	33	53.7	3.86
Urbana University	Champaign	Milo G. Williams	27	75	29, 31	34	54.9	4.00
Bethel	Clermont	George W. Crane	27	78	31	37	54.4	1.38
Carthagena	Mercer	Dr. R. Mueller	25	75	29	33	55.7	2.70
Jacksonburg	Butler	Dr. I. B. Owsley	17	76	31	38	57.7	3.30
Mount Auburn	Hamilton	J. H. White	16	76	31	39	58.8	2.67
Cincinnati	....do	G. W. Harper	16	77	31	38	58.1	2.77
Do	....do	R. C. Phillips	1	78	31	39	59.0	3.23
College Hill	....do	John W. Hammitt	1, 2	84	19,20,31	42	60.0	3.69
Averages							55.6	3.39
MICHIGAN.								
Detroit	Wayne	F. W. Higgins	16	77	31	31	53.8	4.79
Monroe	Monroe	Miss H. I. Whelpley	16	82	31	38	51.1	3.73
Ann Arbor	Washtenaw	Prof. & Mrs. Winchell	16, 24, 27	72	18	34	52.2	3.53
Alpena	Alpena	J. W. Paxton	1, 2	70	31	35	51.8	4.20
Litchfield	Hillsdale	R. Bullard	24	72	29	32	51.8	5.98
Cold Water	Branch	N. L. Southworth	3	76	18	18	52.7	4.75
Grand Rapids	Kent	L. H. Streng	24	73	29	31	52.6	4.84
Do	....do	E. S. Holmes, D.D.S.	7	80	29	33	53.0	5.07
Northport	Leelenaw	Rev. Geo. N. Smith	1	74	31	35	51.4	8.00
Copper Falls	Keweenaw	S. H. Whittlesey	2	73	26	29	42.7	2.80
Ontonagon	Ontonagon	Edwin Ellis, M.D	2	70	25, 26, 29	34	48.9	.....
Averages							51.1	4.77
INDIANA.								
Aurora	Dearborn	Geo. Sutton, M.D.	25	80	31	36	57.3	3.57

Table showing the highest and lowest range of the thermometer, &c.—Continued.

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INDIANA—Cont'd.				°		°	°	*In.*
Vevay	Switzerland	Chas. G. Boerner	27	80	22	39	58.1	2.43
Mt. Carmel	Franklin	J. A. Applegate	9	74	31	38	57.7	1.50
Spiceland	Henry	Wm. Dawson	16, 25	76	51	33	52.7	4.06
Laconia	Harrison	Adam Crozier	27	82	31	39	58.3	2.86
Knightstown	Rush	D. Deem	3, 16, 17 24, 25	74	31	31	56.4	4.62
Indianapolis	Marion	E. Hadley, M.D	27	74	31	33	55.8	2.93
La Porte	La Porte	F. G. Andrew	24	76	31	36	55.0	2.60
Rensselaer	Jasper	Dr. J. H. Loughridge	9	75	31	30	52.6	4.50
Annapolis	Park	Dr. B. C. Williams	27	79	31	28	55.5	3.10
Merom	Sullivan	B. F. McHenry	16, 27	78	31	33	59.3	2.50
New Harmony	Posey	John Chappellsmith	26	77	22	38	58.8	2.69
Averages							56.5	3.11
ILLINOIS.								
Chicago	Cook	J. G. Langguth, jr	3, 24	77	31	34	56.5	2.43
Near Chicago	do	Samuel Brookes	24	80	31	29	54.9	.....
Evanston	do	Prof. G. Marcy	23	72	31	32	53.8	4.39
Marengo	McHenry	J. W. James	1	73	31	26	50.2	3.14
Charleston	Coles	Charles Gramesly	15, 16, 27	77	31	30	54.9	3.46
Mattoon	do	W. E. Henry	27	75	31	35	56.7	3.50
Aurora	Kane	Dr. A. Spaulding	15, 23, 24	72	31	28	51.9	4.63
Louisville	Clay	Dr. D. H. Chase	15	82	31	34	59.0	3.50
Belvidere	Boone	G. B. Moss	24	76	31	27	51.3	3.37
Ottawa	La Salle	Mrs. E. H. Merwin	15	78	31	34	55.0	4.29
Decatur	Macon	Timothy Dudley	27	72	31	34	56.3	3.30
Pana	Christian	Thos. Finley, M.D	27	76	31	30	56.3	2.40
Winnebago	Winnebago	J. W. & Miss Tolman	1, 24	72	31	26	50.4	2.75
Rochelle	Ogle		2, 15	74	31	26	50.6	.....
Wyanet	Bureau	E. S. & Miss Phelps	24	78	31	28	53.5	3.62
Hennepin	Putnam	Ethan Osborn	24	77	31	30	53.3	4.20
Do	do	Smiley Shepherd	15	76	31	29	52.0	.....
Peoria	Peoria	Fred. Brendel	15	79	31	31	55.4	4.27
Havana	Mason	J. Cochrane	15	80	31	30	53.1	3.95
Waterloo	Monroe	Dr. Chas. Jozefe	27	78	31	33	.....	.....
Dubois	Washington	Wm. C. Spencer	27	81	21	37	59.5	2.38
Galesburg	Knox	Prof. W. Livingston	15, 24	75	31	31	55.2	4.46
Manchester	Scott	Dr. J. Grant	24, 25	78	31	30	57.0	2.43
Mt. Sterling	Brown	Rev. A. Duncan	14, 15	78	31	32	56.8	3.15
Andalusia	Rock Island	E. H. Bowman, M. D	15, 23, 24	74	22, 31	31	53.6	.....
Oquawka	Henderson	H. N. Patterson	15	81	31	35	56.1	4.12
Augusta	Hancock	S. B. Mead, M. D	15	78	31	30	54.5	5.20
Warsaw	do	B. Whittaker	15	84	31	35	55.6	5.08
Averages							54.6	3.65
WISCONSIN.								
Sturgeon Bay	Dove	R. M. Wright	2	72	26	32	51.0	4.30
Manitowoc	Manitowoc	Jacob and Miss C. Lüps	1, 24	70	31	32	51.6	1.80
Hingham	Sheboygan	John De Lyser	1	75	31	30	51.2	.....
Milwaukee	Milwaukee	I. A. Lapham, LL. D	24	73	31	30	51.9	1.99
Geneva	Walworth	William H. Whiting	2, 24	75	31	27	49.6	4.05
Embarrass	Waupacca	Edward E. Breed	2, 23	74	21	30	48.1	1.59
Rocky Run	Columbia	W. W. Curtis	2	73	31	28	50.8	0.88
Madison	Dane	W. W. Daniels	1	70	31	29	50.6	2.04
Edgerton	Rock	H. J. Shints	1	84	31	27	53.0	1.30
Mosinee	Marathon	John O'Donoghue	1	75	31	22	44.8	3.85
Baraboo	Sauk	M. C. Waite	2	73	31	28	50.6	2.75
Tunnel City	Monroe	Rev. George Pegler	1, 2	80	31	26	49.6	0.70
Bayfield	Bayfield	Andrew Tate	2	74	18, 31	28	47.4	.....
Averages							50.0	2.30
MINNESOTA.								
Beaver Bay	Lake	C. Wieland	13	80	31	26	47.3	0.95
St. Paul	Ramsey	Rev. A. B. Paterson	2	81	31	21	48.2	1.95
Minneapolis	Hennepin	William Cheney	1	80	31	20	47.0	2.05
Sibley	Sibley	C. W. & C. E. Woodbury	2	79	31	16	46.2	0.50
Koniska	McLeod	T. M. and M. H. Young	2	76	31	20	45.3	1.10

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
MINNESOTA—Cont'd.				°		°	°	*In.*
Litchfield	Meeker	H. L. Wadsworth	1, 2	78	25, 31	26	46. 2	1. 10
New Ulm	Brown	Charles Roos	2	82	31	26	49. 0	0. 73
Madelia	Watonwan	W. W. Murphy	2	86	31	24	48. 6	0. 75
Averages							47. 2	1. 14
IOWA.								
Clinton	Clinton	Prof. P. J. Farnsworth	24	79	30, 31	28	51. 8	2. 50
Dubuque	Dubuque	Asa Horr, M. D	1	72	31	26	50. 7	1. 22
Monticello	Jones	Rufus P. Smith	1	82	18, 31	26	51. 8	1. 55
Bowen's Prairie	do	Samuel Woodworth	1, 2	76	31	22	50. 9	1. 35
Muscatine	Muscatine	J. P. Walton	1	72	31	28	52. 1	3. 95
Fort Madison	Lee	Daniel McCready	15, 24	73	18	32	54. 2	4. 68
Guttenberg	Clayton	J. P. Dickerson	1	78	18, 22	25	49. 3	.....
Mount Vernon	Linn	Prof. A. Collins	1	76	31	24	50. 1	.....
Iowa City	Johnson	Prof. T. S. Parvin	23	75	31	25	51. 8	3. 16
Independence	Buchanan	George Warne, M. D	1	77	31	24	49. 7	0. 90
Near Independence	do	Mrs. D. B. Wheaton	1, 2, 23	76	31	26	50. 0	1. 00
Rockford	Floyd	H. Wadey	1	75	31	26	50. 8	.....
Algona	Kossuth	James H. Warren	2	75	31	24	47. 3	.....
Webster City	Hamilton	Clayton I. Croft	2	78	31	22	48. 1	2. 06
Boonesboro	Boone	E. Babcock	2	76	31	28	48. 3	2. 94
Fontanelle	Adair	A. F. Bryant	2	79	31	27	51. 1	4. 63
Grant City	Sac	Mr. and Mrs. E. Miller	2	80	31	30	50. 0	0. 65
Sac City	do	D. B. Nelson	1, 2	77	28, 31	32	48. 3	.....
Logan	Harrison	Jacob T. Stern	1, 2	74	18	25	51. 4	1. 10
Woodbine	do	D. R. Witter	2	82	31	20	50. 0	2. 03
West Union	Fayette	Frank McClintock	1	88	31	24	51. 4	1. 95
Averages							50. 4	2. 23
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	27	79	31	37	59. 2	3. 34
Allenton	do	A. Fendler, M. D	15	85	31	29	56. 8	4. 13
Hematite	Jefferson	John M. Smith	24	85	31	29	57. 4	4. 45
Hannibal	Adams	F. J. Hearne	15	80	18, 31	34	55. 5	4. 90
Rolla	Phelps	Homer Ruggles	15	81	31	30	56. 9	3. 56
Jefferson City	Cole	N. de Wyl	15	82	31	33	60. 0	.....
Kansas City	Jackson	S. W. Salisbury	24	78	31	30	55. 6	6. 85
Oregon	Holt	Wm. Kaucher	1	82	31	33	56. 1	6. 14
Corning	do	Horace Martin	23	82	31	30	54. 7	5. 65
Averages							56. 9	4. 88
KANSAS.								
Atchison	Atchison	Dr. H. B. & Miss Horn	2	79	31	28	56. 2	9. 20
Williamstown	Jefferson	Cotton & Adams	2	86	31	32	58. 5	7. 95
Leavenworth	Leavenworth	Dr. J. Stayman	1, 2	80	17	34	56. 8	9. 85
Olatha	Johnson	Watts Beckwith	1	79	31	26	55. 9	6. 10
Baxter Springs	Cherokee	Ingraham & Hyland	3, 14, 15, 26	80	20	36	62. 4	7. 20
Lawrence	Douglass	Prof. F. H. Snow	1	79	31	32	56. 5	6. 96
Holton	Jackson	Dr. James Watters	2	87	22	22	55. 8	7. 25
State Agr'l College	Riley	Prof. B. F. Mudge	23	78	31	30	56. 6	5. 06
Council Grove	Morris	A. Woodworth, M. D	2	80	20, 31	28	60. 5	8. 45
Douglass	Butler	Dr. W. M. Lamb	5	82	31	32	57. 2	6. 45
Averages							57. 6	7. 45
NEBRASKA.								
Omaha Mission	Blackbird	Rev. Wm. Hamilton	9	78	18	32	54. 1	0. 77
De Soto	Washington	Charles Seltz	2	79	31	29	50. 8	0. 88
Bellevue	Sarpy	Mrs. E. E. Caldwell	2	79	31	30	53. 7	2. 30
Nebraska City	Otoe	P. Zahner	1, 2, 23	79	31	28	53. 4	2. 55
New Castle	Dixon	Louis H. Smith	13	69	18	23	.....	.....
Averages							53. 0	1. 63

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain and melted snow.
UTAH.				°		°	°	*In.*
Coalville	Summit	Thomas Bullock	3	82	29, 30	23	46.0	.....
CALIFORNIA.								
Monterey	Monterey	C. A. Canfield, M. D.	6	90	24	40	58.5	0.46
Chico	Butte	W. F. Cheney, M. D.	7	99	18, 19, 27, 29	40	63.8	1.10
Watsonville	Santa Cruz	A. J. Compton, M. D.	15	98	25	36	61.2	0.30
Cahto	Mendocino	A. W. Thornton, M. D.	7	94	26	31	63.0	0.00
Visalia	Tulare	James W. Blake	7	90	16, 19	40	61.1	0.86
Averages							61.5	0.91
MONTANA.								
Deer Lodge City	Deer Lodge	Granville Stuart	3	81	24	6	39.5	0.66
COLORADO.								
Denver	Arapahoe	Byers & Sopris	1	83	27	27	47.8	0.68
OREGON.								
Astoria	Clatsop	Louis Wilson	5, 6	67	25	38	52.2	1.82
Eola	Polk	T. Pearce	6, 8	72	25, 27	28	48.1	0.90

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